HIGH COST SUPPORT:
AN ALTERNATIVE DISTRIBUTION PROPOSAL

Prepared by the NARUC Ad Hoc Working Group
on Funding for High Cost Areas

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EXECUTIVE SUMMARY

Representatives of low and high cost states, local exchange carriers large and small, and other industry participants have worked since the summer of 1997 to develop an approach to funding for high cost areas that satisfies both the Telecommunications Act of 1996 (Telecom Act) and their legitimate and diverse interests. The resulting proposal is a reasoned compromise that, if adopted, will satisfy the goal of the Telecom Act to ensure reasonably comparable rates for high cost areas of the country without creating an unduly large burden on cost in low cost areas. The key elements in the proposal are:

1) that funds should flow from state to state only to the extent that a state is unable, by balancing high and low cost areas within its boundaries, to achieve average cost levels consistent with the national average;

2) that current support levels for rural companies are maintained to avoid near-term disruption for rural companies; and

3) that the impact of anomalies in cost data is moderated by basing support on the lesser of embedded or forward-looking state average costs, with a provision to accommodate states that require rapid replacement of older infrastructure.

These elements, taken together, require a fund of modest size (under $2 billion nationwide using current cost estimates) and provide sufficient additional support that high cost states can satisfy their obligations under the Telecom Act.

Perhaps the most important benefit of the proposal, however, is that, because it is the product of extensive negotiation and give and take, its adoption will minimize the degree to which litigation will dominate the Universal Service Fund landscape. High cost states supporting the proposal would give up the opportunity to claim that, under the Telecom Act, far greater federal funding is required; low cost states, for their part, would give up the opportunity to claim in court that any obligation is too great.

Numerous principles guided the design of the plan. These principles are endorsed by all the submitting states as a package, although some states may differ with some of the individual principles.

-       The principal purpose of federal high cost support is to maintain reasonably comparable intrastate rates, and not to reduce interstate access charges.

-       Consumers in rural, insular and high cost areas should have access to a similar spectrum of telecommunications services as consumers in urban areas, at rates that are reasonably comparable to rates charged for similar services in urban areas elsewhere in the country.

-       The federal high cost support program should be as small as possible.

-       Revenues for the federal high cost support program should be derived from a charge on only the interstate revenues of interstate carriers.

-       Collection and distribution of high cost support should be competitively neutral.

-       Federal support should create appropriate incentives for investment in the network.

-       Federal support for high cost areas should be compatible with the method of separating costs and revenues between interstate and intrastate jurisdictions.

-       Federal support for high cost areas should be distributed in a manner determined by state commissions and that is compatible with the state's decisions on related issues of rate deaveraging and establishing the size of service areas.

-       Carrier earnings should be based upon success attracting customers in a competitive market, not based upon exploiting irregularities of state and federal regulatory policy.

-       Federal support should be based upon cost, and should be based upon the differences among the states in the ability to provide reasonably comparable rates with internally generated explicit subsidies. Federal support should permit each state to have rates equal to the overall national average, which is an acceptable definition of rates "reasonably comparable" to urban rates.

-       Both forward looking cost and embedded cost should set upper limits on federal support. This will ensure that any errors generated by forward-looking cost models do not have unduly harsh consequences.

-       Federal support should consist of a single system. No distinction should be made between rural and non-rural carriers, nor between loop and switch costs.

-       Carriers should be assured that federal support will not decrease until the reliability of forward looking models has been securely established.

To satisfy these principles, the proposal would calculate and distribute high cost fund support using the following sequence:

        1. Using forward-looking cost models, calculate the difference between each state's average cost and the national average.   Remove the 25% of these costs already covered by interstate revenues under separations.

        2. Using reported embedded costs of incumbent carriers, calculate the difference between each state's average (embedded) cost and the national average. Remove the 25% already covered by interstate revenues under separations.

3. For each state, take the lesser of the amounts from step 1 and step 2. This is the minimum amount of federal support for each state.

4. Calculate hold-harmless support for each state. For most states, this consists of support under existing support systems (i.e., support for loops and switches). For states with above average embedded costs that currently make a net contribution to federal support, the hold-harmless amount is increased to ensure that the state will not have to increase its net contribution.

5. Federal support under the proposal is the greater of this "hold-harmless" amount and the minimum amount from step 3.

6. State commissions would assign federal support first to carriers who would receive support under existing systems, and distribute remaining support (if any) according to plans adopted by the states and approved by the FCC to ensure consistency with the Telecom Act. States could distribute federal support in accordance with one of several options, each of which would ensure that rates in rural areas are reasonably comparable to rates in urban areas.

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I. Background

This document proposes an alternative to the plan for distributing federal high cost support to rural areas set forth in the order of May 8, 1997 from the Federal Communication Commission (FCC).[1] This proposal was originally prepared at the request of the Chairman of the Communications Committee of the National Association of Regulatory Commissioners (NARUC). The goal has been to find a method of distributing federal high cost support that could be supported by both high-cost and low-cost states.

At its annual meeting in November, 1997, the National Association of Regulatory Utility Commissioners (NARUC) passed two resolutions regarding high cost funding. The first and more general resolution expressed NARUC's concern that the FCC's interstate universal service fund plan would not sufficiently benefit local ratepayers. NARUC supports the use of the Federal portion of the Universal Service Support Fund exclusively to maintain affordable rates in high cost areas. The resolution encouraged NARUC membership, leadership, and staff to convey these concerns both formally and informally to the FCC, in pending access and universal service dockets, and to request further reconsideration of this portion of its universal service decision.

The second NARUC resolution specifically addressed an earlier draft of this paper. It endorsed six general principles that are contained, in revised form, below. It also urged the FCC to foster dialogue among the Section 254 Federal-State Joint Board, State regulators, the NARUC, the FCC, and their respective staffs and other interested parties toward the goal of resolving the high cost funding dilemma now facing regulators. Finally, it authorized the group that prepared this paper to bring the described plan, its supporting principles and the underlying analysis to the attention of the FCC, Congress, the Section 254 Federal-State Joint Board, and to other groups, individuals, or organizations through the working group or other means as appropriate.

After the NARUC annual meeting, work continued under the supervision of Chairman Thomas Welch of the Maine Public Utilities Commission and Commissioner Thomas Dunleavy of the New York Public Service Commission. Staff from several states, including Arkansas, Maine, Maryland, New York, Oregon, Vermont and Washington (Ad Hoc Group), have conducted numerous telephone conferences to develop the proposal described in this paper.

The proposal described below was designed to allow the FCC to meet its statutory obligation to provide sufficient support for high cost areas, but to use no more than the amount of money that

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1. *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Report and Order (rel. May 8, 1997) ("Universal Service Order").

the FCC has indicated it would otherwise be willing to raise from the interstate revenues of interstate carriers.

II. Support For High Cost Areas

A.   The Existing Support System

State utility commissions and the FCC have separate jurisdiction over telecommunications services. State commissions set rates for intrastate telecommunications services, including local exchange service. The FCC sets rates for interstate services, including interstate toll calls. Telephone company revenues and costs are thus now "separated" into state and interstate components.

The FCC currently provides two mechanisms to support local exchange companies. These federal programs have significant although indirect effects on those companies' intrastate rates, including local service rates.

The first federal program provides loop support to some local exchange carriers with high costs. This high cost support is intended to ensure that local telephone rates are priced within the means of the average subscriber in all areas of the country.[2] About one-half of the country's local exchange companies receive high cost support, and these companies serve about one-fifth of the nation's telephone customers. The amount of high cost support each carrier receives is based upon the difference between that carrier's "non-traffic sensitive" cost and the national average cost. These non-traffic sensitive costs consist largely of loop costs, although some switching costs are included. Only carriers with costs greater than 115% of the national average cost are eligible for this support. High cost support is reduced substantially for companies serving more than 200,000 lines, a feature that has been strongly criticized by some states. High cost support payments are not provided directly as cash payments to qualifying companies but are accomplished through the separations (Part 36) process.[3] The total amount of high cost loop support is estimated at $826 million in 1998.[4]

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2. *Amendment of Part 67 of the Commission's Rules and Establishment of a Joint Board*, FCC 83-564, CC Docket No. 80-286, Decision and Order, ¶¶ 30, 33 (1983).

3. Under that process, companies receiving loop support have their intrastate costs reduced (and their interstate costs increased) by the amount of that support.

4. Industry Analysis Division, Common Carrier Bureau, FCC, *Universal Service Support and Telephone Revenue by State*, January, 1998, Table 2. This is based upon 1996 cost data, and includes

The second federal support mechanism allows local exchange carriers serving fewer than 50,000 lines to multiply the interstate ratio of their "dial equipment minutes of use" by a factor that depends upon the number of lines served by the carrier. This effectively transfers costs from the carriers' state to its interstate jurisdiction, thereby allowing a reduction in the intrastate rates set by state commissions. The total annual amount of this support, which is referred to as "DEM weighting," was $428 million in 1996.[5]

B.   The Telecommunications Act of 1996

The Telecommunications Act of 1996 (Telecom Act) requires the FCC to enact "specific, predictable, and sufficient mechanisms" to protect universal service.[6] These mechanisms must ensure that consumers in all regions of the country, including those in rural, insular, and high cost areas, have access to telecommunications and information services that are "reasonably comparable" to those services provided in urban areas, at rates that are also reasonably comparable to rates charged in urban areas.[7]

Some high cost states have argued that this new language requires a substantial increase in federal support for high cost areas. The argument takes at least three forms:

> 1. The existing system discriminates in favor of rural customers who are served by small carriers and against rural customers who are served by large carriers.[8] The Telecom Act prohibits continuation of this discrimination.

> 2. The existing system is based upon a comparison of a carrier's costs with national average costs. However, national average costs are higher than urban costs because costs per line generally decrease as line density increases. The Telecom Act requires that rates in rural areas be "reasonably comparable" to rates in urban areas and also that the spectrum of services available in rural areas be reasonably comparable to urban areas.

(...continued)
Alaska and insular areas.

5. *Id.* at Table 6.

6. 47 U.S.C. § 254(d).

7. 47 U.S.C. § 254(b)(3).

8. The current system provides less support for carrier serving more than 200,000 access lines.

   3. The fundamental policy goal of the Telecom Act is to promote competition in
the local exchange market. Since increasing competition generally drives prices closer
to costs, and since many local rate designs today average rates between high-cost and
low-cost areas, increased competition in the local exchange market is widely expected
to reduce rates in low-cost urban areas. This in turn may drive up local exchange rates
in high-cost rural areas, jeopardizing universal service in those areas.

Low cost states, on the other hand, have expressed a desire to set universal service support at
the minimum level consistent with the objectives of the Telecom Act, and have asserted that even
the support levels necessary to implement the FCC's order of May 8, 1997 would be excessive.[9]

Both low cost and high cost states recognize all states are acting to represent the legitimate
concerns of their citizens. Both groups of states desire to work together to achieve the Telecom
Act's purposes.

C.   The FCC Order

In its May 8 order, the FCC described a plan for support of high cost areas with the following
characteristics.

   1. High cost support would be funded by imposing a charge only on interstate
   revenues of interstate carriers.[10] This makes available a national revenue stream
   of approximately $82 billion in 1999 from which to draw support for high cost
   areas.[11]

   2. The FCC would distribute support to any eligible carrier providing service to a
   customer.[12]

   3. The FCC would distribute high cost support based upon the results of a
   forward-looking cost model.[13] The calculated need for support would be the

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   9. These low-cost states have also taken the position that federal support for high cost areas
should be drawn from a surcharge on the interstate revenues of interstate carriers, but not from the
intrastate revenues of those carriers. The FCC's order of May 8 is consistent with this position.

   10. *Universal Service Order* at ¶ 831.

   11. Previously, the states had disagreed about whether the FCC could or should also impose a
surcharge on the estimated $133 billion available in 1999 in the intrastate retail revenue stream.

   12. *Universal Service Order* at ¶¶127 et. seq.

   13. *Id.* at ¶¶ 224-26.

difference between a carrier's forward-looking cost and a national "benchmark" amount.

4. The FCC would provide 25% of the calculated support needed.[14]

5. The FCC would apply federal universal service support to a carrier's revenues in the interstate jurisdiction, in order to reduce the carrier's interstate access charges.[15]

In order to evaluate the impact of the FCC's May 8 order, and to develop an alternative approach, the Ad Hoc Group needed the results from a forward-looking cost model. However, the FCC has not yet adopted a particular model. The Ad Hoc Group first looked to the two leading models, the "Hatfield" (now called "HAI") model and the "BCPM" model. Each model predicts a total amount of support needed in each area of the country if a particular "benchmark" is set for company revenues.   However, the results from Hatfield differ substantially from the results from BCPM, both in overall effect and in estimated costs in particular areas.

Since a final cost model has not yet been established by the FCC, the Ad Hoc Group   has decided to use the "HAI" model.[16] In the absence of a decision by the FCC selecting a single model, the results should be considered illustrative rather than definitive.

Using the approach in the May 8 order, the total national need for support is $4.96 billion per year. If federal funds were to provide 25% of the support needed, the burden of any additional support would fall to the states. The size of that burden varies dramatically from state to state. For example, North Dakota would need to raise and distribute $20.82 per line per month to reach full support.[17] To raise this much money, North Dakota would need to impose a surcharge of 30% on its

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14. *Id.* at ¶ 269.

15. *Matter of Access Charge Reform*, CC Docket Nos. 96-262, 94-1, 91-213 & 95-72, First Report and Order (rel. May 16, 1997), at ¶ 381. As to rural carriers not under price caps, the FCC also said that these carriers should "continue to apply any revenues received from the modified universal service support mechanism that replace amounts received under the current high cost support system to the accounts to which they are currently applying high cost support." *Id.* at ¶ 385.

16. The HAI model, version 5.0a, can be run in three different ways, based upon different geographic units: density zones; census block groups; and wire centers. The first of these, density zones, produces the lowest support estimates, and has been used in this analysis.

17. State support per line per month would also exceed $10.00 in Montana, Nebraska, South Dakota, and Wyoming.

carriers' intrastate revenues.[18]   Montana and South Dakota also would need to impose rates of 30% or more.

By contrast, the District of Columbia would not need to raise any supplemental funds. Other states with large urban populations would need only modest surcharges. California, Massachusetts and New Jersey could each meet their own needs at surcharge rates below 2%.

Several high cost states have appealed the FCC's universal service order or sought reconsideration, asserting that the FCC approach of paying only 25% of needed support for high costs, and then assigning those funds to the interstate jurisdiction to reduce access rates, is inconsistent with the statutory mandate of providing federal support under Section 254 for rural areas. In particular, these states contend that any system that requires some states to pay such a surcharge of 20% or more, while allowing other states to impose only nominal surcharges or none at all would fail the statutory test of "reasonably comparable" rates. If the courts should agree with these arguments, the HAI Cost Model suggests that a federal support program of $4.9 billion could result.

Low cost states have other concerns. Some are concerned that the establishment of a large federal fund could draw significant funds from their states for the benefit of other states. Such transfers might be particularly difficult for low cost states with substantial low-income populations. Some low cost states are also concerned that establishment of a large federal fund would increase the federal role in the regulation of local telecommunications.

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18. This assumes intrastate revenues in North Dakota of $333 million per year in 1999. Part of this may be implicit in rates already.

III. Principles For the Federal High Cost Support Mechanism

A.   Overall Objective

The alternative support plan presented in this paper was designed to produce a federal universal service support mechanism that generates as small a fund as possible, consistent with the statutory objective of reasonably comparable rates and services. The proposal provides federal support to those high cost states that are unable to generate internally the support necessary to maintain rates in high cost areas that are reasonably comparable to rates in urban areas. These states cannot meet the statutory objectives without receiving outside funds because they do not have within their boundaries enough customers (and accompanying revenue) in low cost areas from which to draw that support. The plan is thus designed to provide support to states with average costs above the national average.

B.   Defining the Problem

Two distinct definitions exist of the problem that should be solved by federal high cost support. The definition of the problem influences the best design for a federal support system. However, upon further analysis we believe that the Congressional intent regarding the Federal USF program can be identified.

The first interpretation is to define the problem as the existing large differences in underlying costs between urban areas and some rural areas. It has long been acknowledged that in some areas of the country it is simply very expensive to provide customers with telephone service. To the extent carriers serving these high cost areas cannot average costs with low cost areas, their customers inevitably face high rates, thereby jeopardizing universal service.

This first problem might be thought of as the "Underlying Cost Problem." It suggests that federal support should be aimed at ameliorating the rate differences that arise from underlying cost differences between rural and urban areas. The root concern is that rates must be "comparable" everywhere in the country, whether or not competition in that area has flowered.

The alternative is to define the problem as the expected rate effects of local exchange competition. As competition develops, most observers agree it will be increasingly difficult for incumbent carriers to maintain averaged rates across their service areas, and there will be increased demand on state commissions to de-average rates, thereby eliminating what the FCC has called "implicit subsidies." If these implicit subsidies start to disappear, rates in high cost areas could rise, perhaps to unacceptable levels, thereby jeopardizing universal service. Some parties feel that states

and the FCC have a duty to establish support in these high cost areas, even before competition develops, so as to encourage that development.

This second problem might be thought of as the "Subsidy Replacement Problem." It suggests that the purpose of Section 254 is to replace implicit subsidies presently found in local (intrastate) rates. Federal support thus would eliminate the harshest effects of this new rate deaveraging process. The root concern is to ensure that rates remain "comparable" within existing "study areas," the areas over which any existing implicit subsidies today operate.

Although the two problems are separable, the proponents of the plan described in this paper acknowledge the importance of solving both the Underlying Cost Problem and the Subsidy Replacement Problem. However, the Underlying Cost Problem has served as the primary design basis of this proposal for five reasons:

First, the Underlying Cost Problem is the only problem where a Federal program is necessary. The Subsidy Replacement Problem does not require any "new money;" it only involves making explicit and competitively neutral those existing fiscal transfers that already occur between customer classes and geographic areas. In other words, states can solve the subsidy replacement program on their own. Conversely, the Underlying Cost Problem, being based upon inherent differences between states, may require a transfer of support dollars between states, something that only the federal government can achieve.

Second, in enacting Section 254 of the Act, Congress intended to solve the Underlying Cost Problem. The FCC's existing high cost support program operates in this way; it calculates support based upon a carrier's average cost, as compared with a national average. Thus, Congress intended by Section 254 that the FCC's existing program be made incrementally more effective. Conversely, it is unlikely that Congress intended Section 254 to provide federal funding to replace existing implicit state subsidies.

Third, the Subsidy Replacement Problem, under its own terms, requires support only when competition is strong and implicit rate subsidies have become (or are about to become) explicit.   In fact, while competition has gained a foothold in many states, few or no state commissions have permitted widespread deaveraging of local exchange rates. Therefore, the Subsidy Replacement Problem suggests that significant federal high cost support might be needed in the future, but the need at present is more modest.

Fourth, solving the Subsidy Replacement Problem is beyond the practical upper limit of a federal program. Solving the Subsidy Replacement Problem requires calculating support on a wire center by wire center (or smaller) basis. The result of such calculations, however, inevitably is a

large need for support. By focusing only on the Underlying Cost Problem, a federal program can solve that portion of the problem which can only be solved by federal programs, without becoming impractically large.

Finally, the fifth and most important reason for emphasizing the Underlying Cost Problem is that states have only limited fiscal capacity. If maintaining universal service is to be a joint state-federal responsibility, the state's share of that responsibility must have some relationship to the state's resources.   In general, states will be able to solve internally much or all of the Subsidy Replacement Problem without federal assistance. This is because the Subsidy Replacement Problem concerns de-averaging of rates within study areas, which by definition are entirely within states. Thus state efforts to solve the Subsidy Replacement Problem will have to address only the differences between the state's high cost and its low cost areas.

By contrast, solving the Underlying Cost Problem may be well beyond the economic reach of at least several of the states. If a state has a high average cost, any state effort to bring rates down will be self-defeating. To generate adequate funding, the state would need to impose a large surcharge on intrastate services. That same surcharge, however, would prevent total rates (including the surcharge) in that state from being reasonably comparable.

C.   Principles

The following principles guided development of the proposal. The submitting states believe these principles, when taken in their entirety, provide a sound basis for meeting the requirements of the Telecom Act and addressing the legitimate concerns of consumers in all areas of the country.

1. Intrastate Purpose

The principal purpose of high cost support is to establish conditions that permit states to maintain reasonably comparable intrastate rates. This is consistent with the history of high cost support and with the intent of the Telecom Act.

In the interstate jurisdiction, the FCC has jurisdiction to set access charges. If the FCC is concerned that access charges include implicit subsidies, it may want to establish additional surcharges and distributions to convert existing implicit subsidies in that jurisdiction to explicit subsidies.

2. Sufficiency

Consumers in rural, insular and high cost areas should have access to a similar spectrum of telecommunications services as consumers in urban areas. These services in rural areas should be available at rates that are reasonably comparable to rates charged for similar services in urban areas. The Telecom Act requires that rates be "reasonably comparable," not only between urban and rural areas within a single state, but also between urban and rural areas in different states. This requires federal support for at least some high cost areas. Support mechanisms must be specific, predictable, and sufficient to allow rates to be affordable.

3. Minimal Size

The federal high cost support program should be as small as possible, consistent with other principles, and its size should be as close to the size of the current federal loop and switch support programs as reasonably practicable.

4. Assessment on Interstate Revenues

Collections for the federal high cost support program should be derived from a charge on the interstate revenues of interstate carriers. The intrastate revenues of interstate carriers should not be used in any way in determining collections.

5. Compatible With Competition

a. Competitive Neutrality

Collection and distribution of high cost support should be competitively neutral. Support should not be available preferentially to competitive or incumbent carriers, or to large or small carriers.

b. Supports Development of Competition

The method of distributing high cost support should support the development of competition. The new system should permit new competitors with costs at or below the incumbent's cost to provide service at competitive prices. The system should also offer the opportunity for new competitors to make a profit.

6. Incentive for Investment

Federal support for high cost areas should, when considered in the context of the entire regulatory system of telecommunications, contain appropriate incentives for upgrading and modernizing the network, particularly in areas that currently receive poor or marginal service.

7. Compatible With Separations

Federal high cost support should be one element in a coherent system of telecommunications regulation. One important element in that system includes the jurisdictional separation of costs and revenues.

A portion of loop and other costs are presently assigned by Part 36 of the Code of Federal Regulations[19] to the interstate jurisdiction and are recovered in that jurisdiction. Therefore, federal support for intrastate rates in high cost states can be reduced by the costs that are already recovered in the federal jurisdiction.[20] This ensures adequate federal support but prevents double recovery.

8. Compatible With State Policies

a. State Distributions of Federal Support

Federal support should be distributed to state commissions. States should then further distribute those funds to Eligible Telecommunications Carriers in a manner that supports universal service in state-identified high cost areas. Distributions should be based on state-performed cost studies meeting minimum criteria established by the FCC and should follow a plan submitted by the state commission and approved by the FCC. States should be permitted to tailor distributions depending on the extent that local exchange competition has actually developed in the state and in conformity with other state policies.[21]

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19. 47 C.F.R. Part 36.

20. This can be accomplished by multiplying total support for each state by the composite intrastate separations factor for that state. For purposes of modeling below, the composite intrastate separations factor for each state is assumed to be 75% . This approximation is used here for illustrative purposes to determine the approximate size of the federal fund required. The final plan should use each state's individual composite separations factor. That change would not significantly alter the amount of money allocated to each state nor would it significantly alter the total size of the fund.

21. If a state does not develop or use its own mechanism, the FCC would have authority to distribute the funds to carriers, using one of the methods available to state commissions.

        b. State Rate Designs

One reason to distribute federal support for high cost areas through state commissions is to ensure that distributions are consistent with the decisions of state commissions in setting rates for intrastate services. This also will encourage cooperation between the FCC and state commissions in implementing the Telecom Act.

Under the Telecom Act, states remain responsible for intrastate rates, including the rates for unbundled network elements (UNEs). States can decide whether and how to geographically de-average retail and wholesale rates. States are also responsible, within limits, for designating the service areas of eligible telecommunications carriers. At least for non-rural carriers, states are free to design large or small service areas.

States will need to establish a coherent system of policies. They will have to decide whether to deaverage wholesale rates, whether to deaverage retail rates, and whether service areas served by non-rural eligible telecommunications carriers should be large or small. If a state does not successfully coordinate its universal service policy and its wholesale pricing policy, for example, the result could be the waste of high cost support.[22] Similarly, failure to coordinate universal service policy and retail pricing policy could also produce excess support for services purchased for resale.[23]

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22. For example, assume that the state has established universal service support at the wire center level, but most of the state is served by a single large company and the state has decided to maintain a statewide wholesale price for unbundled network elements (UNEs) from that company. Further assume that in a particular high-cost wire center, cost is $80 per month, high cost support is $50 per month, and that a carrier can buy UNEs at the statewide average price of $20 per month.

     There would be no need to provide support of $50 a month to a carrier buying UNEs at $20 per month. If $30 in support were indeed provided, an economically rational carrier could provide free service or even pay customers up to $10 per month to accept service. Moreover, the implicit support from one part of the state to another would continue in the form of the $20 per month average price for UNE's, thus frustrating Congress's intent that subsidies be made explicit.

23. For example, assume once again that the state has established universal service support at the wire center level, but has decided to maintain the retail price of dial tone service at a statewide level. Further assume that in a particular high-cost wire center, cost is $80 per month, high cost support is $50 per month, and that a carrier can buy dial tone at a statewide average price of $20 per month. Finally, suppose that Carrier A either owns some of its facilities or purchases some UNEs and therefore is not a "pure reseller." Under applicable federal rules, Carrier A, and not the underlying carrier, is entitled to universal service support. *Universal Service Order* at ¶¶ 152,161.

     There is no need to provide support of $50 a month to a carrier buying dial tone for resale at $20 per month. The problems are the same as those described in the preceding footnote.

Finally, states may also want to establish service areas for eligible carriers that are congruent with their pricing zones.[24]

Federal support to high cost areas should be sufficiently flexible that it can accommodate legitimate variations in state policy, particularly concerning deaveraging of wholesale and retail rates and in the establishment of service areas. As state commissions deliberate on these decisions, they should know that, whatever the result, federal support for high cost areas will be appropriate in amount and distributed in a coordinated fashion.

Distributing funds through state commissions should encourage cooperation with the FCC. In recognizing that state decisions on rates and service areas are critical variables, the FCC would be offering state commissions a more meaningful basis for a partnership in implementing the Telecom Act.

9. Success Defined by the Market

The Telecom Act provides tools to initiate competition in local exchange services. Carriers who succeed in competitive markets are entitled to earnings determined by their market. However, high cost support should not distort market forces by creating opportunities for arbitrage. Carriers should not be able to gain advantage by exploiting the irregularities of state and federal regulatory policy.[25]

10. Cost-based Support

a.   Costs versus Rates

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24. For example, assume that most of a state is served by a single RBOC and the state has decided to leave the wholesale price of UNEs averaged statewide. Further suppose that the state has designated service areas for "Eligible Telecommunications Carriers" on a wire-center-by-wire-center basis.

  Competitive LECs would have an incentive to serve high-cost wire centers through the purchase of UNEs and to serve low-cost wire centers through construction of new facilities. In areas where competitors have constructed their own facilities, the incumbent might not be able to compete effectively on price. Furthermore, competition might develop unevenly throughout the state.

25. For example, as in footnote 22 above, where universal service support and UNE pricing are not on the same geographic scale, a carrier could receive high cost support of $50 per month while incurring costs of only $20 per month. Similar profits could be earned in reselling dial tone, as noted in footnote 23 above. Assuming the carrier can also collect a charge from the customer, the carrier in either case would be able to earn in excess of $30 per month. Under these facts the carrier could earn a profit by exploiting the regulatory system rather than by becoming the most efficient competitor.

While the Telecom Act sets a standard of reasonably comparable rates, the use of costs instead of rates is a more consistent measure of a need for federal support in high cost areas. Rates are influenced by numerous uncontrolled variables, such as differences in the allocation of costs between toll and local services and differences in the size of local calling areas.

b. Cost Differences Among States

States differ significantly in the average cost of providing those services that the FCC has determined are required by the Telecom Act. This is primarily due to differences in the mixture of high-cost and low-cost lines. States with a high proportion of high-cost lines tend to be high average cost states, and vice-versa.[26]

c. Assumed State Effort

The total amount of federal support for high cost areas can be reduced because the states also bear a portion of responsibility for providing support in their high cost areas and ensuring that rate levels are comparable to those in urban areas throughout the United States. The level of federal support should be sufficient to permit each state to achieve the objective of having rates equal to the overall national average. Thereafter, the states have the burden, with resources drawn from within the state, to ensure that rates in rural and high cost areas are reasonably comparable to urban rates.

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26. This effect is examined in more detail in Appendix A.

        d. Forward Looking Cost

Forward looking costs should provide an upper limit on the federal support for a high cost area. Where costs are declining, these kinds of cost models can predict the costs of an economically efficient new network. Reliance on such costs will, in the main, reduce the overall support need of the high cost system. However, to the extent that these models do not produce reliable results, these models should be used cautiously to ensure that any residual errors do not create undesirable side effects.

        e. Embedded Costs

Embedded costs should provide a second and independent upper limit on federal support for a high cost area. Where costs are increasing, or where existing plant is largely depreciated, the embedded network (assuming adequate service) provides the economically efficient method of providing local exchange service. This can be true in areas where labor costs, raw materials cost, or real estate values have been increasing. Where embedded plant is providing adequate service and has a lower cost than new plant, the use of embedded costs is preferable. To use forward looking costs could have the effect of creating a price umbrella and would suggest that customers are willing to pay for the replacement of adequate existing facilities.

This will ameliorate the tendency of some forward-looking cost models to overstate costs in some areas because of the inaccuracy of modeling customer locations.   It will also reduce the overall size of the federal fund.[27]

        f. Defining "Reasonably Comparable" Costs

National average costs are reported to be about 50% above urban average costs.[28] This is an acceptable definition of costs that are "reasonably comparable" to urban costs.   This means that if the federal and state support systems could ensure that no carrier must cover net costs above the national average, the system thereby could meet the statutory criterion of "reasonably comparable"

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27. The logic supporting the lower of forward-looking or embedded costs is similar to that used to support the FCC's competitive bidding or auction proposal. That is, if bidding is adopted as a method for providing universal service, the winning bid in most areas would likely reflect the lower of the incumbent LEC's embedded costs or a new competitor's forward-looking costs of constructing a new network.

28. This conclusion is based upon an analysis of version 3 of the Hatfield cost model. Nationwide summaries by density zone have not yet been produced under HAI 5.0a to allow this analysis to be updated.

rates.[29] To the extent that embedded costs are used in calculating federal fund distributions, because of the history of funding the high cost program, the reasonably comparable standard can be pushed as high as 105% of national cost.[30]

11. Single System

a.   All Rural Areas

Existing FCC policy largely equates rural areas and rural companies. This is not an accurate equation because many high cost rural areas are served by large companies.

A high cost support system can be simpler and more accurate if it calculates support based upon the characteristics of the service territory, and not upon the characteristics of the telephone company that happens to serve that area. Therefore, a single federal support program should apply to both rural and non-rural companies, without regard to their size. Also, a single system should apply in both rural and non-rural areas.[31]

b.   Loop and Switch

In some states, the cost of switching and trunking is as large as the cost of loop plant. To ensure that all high cost areas are treated equally, a single federal support program should replace both the existing federal high cost and DEM weighting programs.[32]

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29. While this makes it possible to achieve reasonably comparable rates, other conditions would also need to exist. For example, state commissions would have to ensure that federal and state high cost support is actually translated into lower consumer rates. For competitive LECs not subject to rate regulation, the same result would be achieved by market forces.

30. Currently, high cost loop support is available when those costs exceed 115% of the national average.

31. As indicated above, forward-looking models may not adequately model costs in rural areas. To the extent that this is an acknowledged problem for areas served by "rural companies," it must also be a problem for "non-rural companies" serving rural areas. In lieu of their current objective which is predicated upon a bifurcated scheme, the "Rural Task Force" should be charged with examining the effect of forward-looking models in all rural areas, including those served by non-rural companies.

32. Other support mechanisms, such as "Long Term Support" are not considered here because they do not directly affect intrastate rates.

12. Hold-harmless

Federal support for a state should not be less than the amount currently received by carriers in that state for any High Cost Support (NTS costs or "loop"costs) plus DEM weighting amounts.[33]

In addition, where a state already has high rates and makes a net contribution to federal support, that state's contribution should not increase under the new system.

IV. How Does the Proposal Work?

In accordance with the preceding principles, a five part calculation will produce a federal support amount for each state which, in conjunction with state programs, will meet the statutory criterion of reasonably comparable rates. The new plan would take effect, both for rural and non-rural companies, on January 1, 1999.

A.   Step 1 - Forward-looking Support

In this step, the average cost in each state is calculated using a forward-looking cost model. HAI version 5.0a is used as the forward-looking model for estimating the results. Federal support under Step 1 is set equal to 75%[34] of that amount which, if distributed to carriers, would allow the state's net cost to be reduced to the national average.[35]

For example, Alabama has an average cost of $27.69 per line per month. This is $8.06 above the national average of 19.67. Alabama's Step 1 support level therefore is $6.01 per line per month, which is 75% of $8.06.

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33. The detailed calculation of hold-harmless amounts is described below.

34. The 75% factor used here is an approximation of the composite state separations factor. It is used here for illustrative purposes to determine the approximate size of the federal fund required. It may be desirable in the final plan to use each state's individual composite separations factor in lieu of the fixed 75% amount. That change would not dramatically alter the amount of money allocated to each state nor would it dramatically alter the total size of the fund.

35. The traditional outputs of forward-looking cost models is an amount of "support needed," assuming a particular benchmark. The calculation here disregards this traditional output of the cost models. Rather, the only outputs used are average cost and number of lines.

By contrast, California has an average cost of $13.64 per line per month. This is below the national average of $19.67. Therefore, California does not receive any support from the Step 1 calculation.

This model calculates smaller support amounts when the calculation is performed at the wire center or census block level. The reason is that the calculation here aims only to reduce each state's average cost, not to provide support to each small geographic area within the state that might have high cost. States are free to provide the extra level of support to smaller areas, as authorized by the Telecom Act.[36] States with low average cost, however, will not get federal support, and would have to provide any support for high cost areas from state-generated funds.

B.   Step 2 - Embedded Cost Support

The calculation in Step 2 uses the same method as in Step 1, with two exceptions. First, embedded costs are used instead of forward-looking costs.[37] Second, in order to reduce the overall size of the federal support fund, the national cost "threshold" figure has been increased by 5%. In other words, federal support under Step 2 is set equal to 75%[38] of that amount which, if distributed to carriers, would allow the state's net cost to be reduced to 105% of the national average.

Embedded cost has been included in the plan for two reasons. First, embedded cost is an appropriate limit on forward-looking because it has not yet been demonstrated that forward-looking models are accurate in all cases. Errors can arise from a variety of sources. For example, the models may not be using accurate customer location data. In that sense, embedded costs operate as a check on the validity of the results of forward-looking models. As the models improve over time, the use of embedded costs should be reexamined.

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36. 47 U.S.C. § 254(f).

37. Embedded cost is set equal to the sum of loop, switching and trunking costs. The sources of data for this calculation are described in Appendix B.

   In addition, embedded cost could be adjusted further to reflect the cost of any state-supported facilities that function in the same manner as LEC-owned facilities. For example, the cost of a state supported video network for schools might be eligible to be included in embedded costs.

38. The 75% factor used here is an approximation of the composite state separations factor. It is used here for illustrative purposes to determine the approximate size of the federal fund required. It may be desirable in the final plan to use each state's individual composite separations factor in lieu of the fixed 75% amount. That change would not dramatically alter the amount of money allocated to each state nor would it dramatically alter the total size of the fund.

In addition, even if the proxy models were perfect, there are economic reasons to consider embedded costs. Even if the proxy models were perfectly accurate and embedded costs were reported with complete accuracy, in some areas of the country it may be that forward-looking costs are higher than embedded costs.

High forward-looking costs might be found, for example, in an area that has largely depreciated its existing loop plant of buried copper wire. Since labor costs and copper costs have not necessarily decreased since that plant was installed, and since the plant is largely depreciated, construction of replacement plant could have a significantly higher forward-looking cost. For this reason, even after forward-looking models achieve a high level of accuracy, it may still be appropriate to consider embedded cost figures in calculating federal support for high cost areas.

The most recent available embedded data should be used in each year's support calculation. By using recent data, carriers and state commissions will be guaranteed that whenever a carrier upgrades facilities, new investment will promptly lead to increased federal support.[39] This can be important in areas where existing plant and service is inadequate. State commissions in some cases need as many tools as possible to encourage adequate investment. Indeed, current data on embedded investment may be of sufficient importance to justify using a projected estimate rather than historical data.[40]

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39. This will require the FCC to continue to collect data, such as ARMIS data, on investment and expenses for incumbent LECs.

40. This could be accomplished in the same manner that estimated costs are now used to set access charges under Part 69 of the FCC's rules. As is true under Part 69, periodic audits and a repayment mechanism would be needed for overpayments that resulted from inaccurate estimates of investment.

C.   Step 3 - Lesser of Above

This step calculates the lesser of the results from Step 1 and Step 2. The effect of this step is to ensure that the need for support in a state is determined by the lower cost alternative as between building a new network and using the existing network.   Limiting support to the lesser of forward-looking need or embedded need conserves federal financial resources and reduces the likely effect of any errors that might remain in the cost proxy models.

D.   Step 4 - Hold-harmless

This step calculates a hold-harmless level for each state. It equals the greater amount from two calculations, Part A hold-harmless and Part B hold-harmless.

Part A hold-harmless is intended to ensure that no state, and no carrier, receives less support, per line, than it received under the old support system (support-based hold-harmless). The amount received by each state is the sum of three items:[41]

1.   The projected High-Cost Support (NTS or "loop" support) to local exchange carriers;
2.   DEM weighting for local exchange carriers that report their costs to the FCC; and
3.   DEM weighting for "average schedule" local exchange carriers that have an average switch size of less than 500 lines.[42]

Part B hold-harmless protection is intended to ensure that the ratepayers in high-rate states are not further burdened by contributions to the new system. It is available only to states with above average costs, measured on an embedded basis, and thus presumably will benefit only states that already have high rates. Part B hold-harmless also applies only to states that presently make a net contribution to the federal high cost and loop support programs. That is, the customers in these states contribute more to these programs than the carriers in those states receive for support. For states meeting both of these criteria, Part B support is calculated to ensure that the net contribution

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41. A fourth item that was discussed but not specifically endorsed may be worthy of further consideration. Federal support could be used to reimburse the District of Columbia for its extraordinary support of telecommunications relay services related to Gallaudet College.

42. A data analysis performed for the National Telephone Cooperative Association suggests that the switching cost of serving a customer increases significantly when the switch size is less than 500 lines. Therefore, even though a local exchange company may prefer to have its costs calculated on an "average" basis, it may nevertheless have high switching cost if it has, on average, small switches. Overman, Richard, unpublished paper, *see Comments, National Telephone Cooperative Association*, CC Docket 80-286, Oct. 10, 1995.

of that state does not increase (contribution-based hold-harmless).[43] For states receiving Part B
hold-harmless support, this support is in addition to hold-harmless support available under Part A.

E.   Step 5 - Greater of Above

This step takes the larger of the results from Step 3 and Step 4. The effect is to set the hold-
harmless level as the minimum support for each state. This is the final amount of federal support
that would be available to ETCs within each state.

F.   State Distributions; State Plans

The amount of support calculated in step 5 would be distributed in two portions, a hold-
harmless portion and a discretionary portion. To the extent that federal support for the state equals
the Part A (historical support) hold-harmless amount, that support would be distributed to eligible
telecommunications carriers based upon prior federal support to that carrier.[44]

The second part of the distribution would apply to all federal support available to the state
above the Part A hold-harmless amount. This discretionary portion could be distributed in three
ways. One option would be for these discretionary funds to be distributed by USAC to state
commissions and then further distributed by state commissions to ETCs. Alternatively, state
commissions could exercise a power of appointment over the funds, deciding upon the amounts to
be distributed, but relying on USAC to transfer the funds directly to the ETCs.

The third option for distributing this discretionary support amount would be for the FCC, at its
discretion, to direct a reduction in the subscriber line charge for ratepayers in a specific state. This

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43. Calculation of Part B support is complex, because it requires repeated estimations of support.
Each change in Part B support for any state generally changes the size of the national fund. This in
turn increases each state's contribution to the fund, and thus creates a need for even more Part B
support. However, by repeatedly increasing Part B support for the approximately nine states
affected, it is possible to achieve results at any desired level of accuracy.

44. This support could be transferred directly by the Universal Service Administrative Company to
the ETC, pursuant to the commission's directions, or it could be transferred to the commission with
the understanding that it would be further distributed to the ETCs.

Support would go to the incumbent LEC on a per line basis. Where a competitive LEC has
taken over accounts formerly served by the incumbent, the hold-harmless benefits would be portable
and would be paid to the competitive LEC.

option would ensure that ratepayers in the affected state are provided with the benefit of distributing these federal funds to maintain reasonably priced rates for basic local service.[45]

Each state commission would be required to submit a plan for distribution of federal discretionary support for FCC approval. A state commission submitting a plan under options 1 or 2 would describe the state commission's method of distributing federal funds. For options 1 and 2, commissions should be able to design methods that are specific to that state's needs, so long as the plan meets the statutory goal of ensuring reasonably comparable rates to urban areas.[46] In designing distribution plans under options 1 or 2, state commissions might want to consider several factors.

    a.   A state plan might be designed to reflect that service areas and build-out responsibilities for competitive LECs in the state are larger than wire centers, and accordingly require a cost model operating at a geographic scale larger than the wire center.

    b.   A state plan might be designed to reflect the geographic scale at which incumbent LEC wholesale prices are de-averaged.[47]

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45. The third option would be limited to instances where a state has limited regulatory authority to require that Federal USF funds be directly passed to end users.

46.   Two methods are described here for purposes of illustration.

Using Method A, the state commission would perform a support calculation for each ETC in the state. The support for each ETC would be based upon the difference between its average cost and a statewide cost threshold. Cost could be determined by a forward-looking cost model, an embedded cost model, or a blend of the two. Therefore, Model A could itself have a number of variants based on different combinations of forward-looking and embedded costs.

This is analogous to the method that the FCC would use to calculate support for the state as a whole, but with the difference that the state would adjust the statewide threshold cost parameter to ensure the distribution of all high cost funds, both state and federal, that are likely to be available. The total amount distributed would consist of federal hold-harmless support, federal discretionary support and any funds raised by the state.

Using Method B, as in Method A, the state commission would perform a support calculation for each ETC in the state, and once again the support for each ETC would be based upon the difference between its average cost and a statewide cost threshold. Each ETC would receive 100% of its hold-harmless amount plus a pro-rata portion of its other support need. The pro-rata portion would be the same for all ETCs in that state in a given year. As with Method A, the total amount distributed would consist of federal hold-harmless support, federal discretionary support and any funds raised by the state.

47.   For example, if a state has established three pricing zones for resale of services available from

     c.   A state plan might be designed around specific state policy objectives. For example, a state might want to promote investment in parts of a state needing to upgrade the quality of service or physical facilities.

Each plan under option 1 or 2 would also contain assurances necessary to distribute the funds efficiently and to meet federal policy objectives.

     a.   The plan would state that the commission has authority under state law to distribute federal discretionary high cost support.[48]

     b.   The plan would state whether the commission prefers to receive title to the funds or to have a power of appointment for the funds. If the commission prefers title, the plan should also describe whether the commission prefers to use a third party administrator to receive and account for federal support, and if so, should name that administrator.

     c.   The plan would state that distributions of federal funds will be made only to ETCs for the purpose of defraying high local rates for universal service[49] in high cost, rural and insular areas.

The FCC would review state plans for distribution of federal funds. The FCC would require that such plans advance the objectives of Section 254 of the Telecom Act, including the requirement that rates and service in rural areas be reasonably comparable to those in urban areas. State plans would also need to be competitively neutral,[50] and should also ensure that each ETC receives an amount of federal support at least equal to the hold-harmless portion that ETC has generated.

G.   Individual Income Factors

Average income might be used to adjust federal support levels. Support might be increased, for example, in states with a high incidence of poverty or states with a low average income. Low income ratepayers in many cases may also live in low cost areas, thus creating the appearance that

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(...continued)
its regional Bell operating company, it might decide to establish the same three zones for calculation of high cost support.

48. The FCC might want to seek public comment on whether state commissions will require legislative authority to distribute federal funds in this manner. Some commissions may conclude that they presently have authority to so act, either under the Telecom Act or under existing state law. Others may need or may desire to seek explicit state statutory authority.

49. The elements of service required to be supported are defined in 47 U.S.C. § 54.101.

50. The competitive neutrality requirement might require that carrier support be "portable."

poor individuals in low-cost areas are being required to subsidize rich individuals in high-cost areas. While using an income-based test may warrant further study, for the reasons discussed below, no income factor has been included in this proposal.

First, by collecting funds from interstate revenues, federal support will be raised in a progressive manner. This is because customers who use a high volume of interstate services will contribute proportionately more to the fund. These are generally business customers and higher income residential customers. It is unlikely, therefore, that low-income individuals, even in low-cost states, would be significantly burdened by this proposal.[51]

Moreover, high cost support is only one part of the program supported by the FCC's universal service mechanisms. Support for schools and libraries and support for the lifeline and link-up programs are specifically targeted to the needs of the educational and low-income communities. Indeed, much of the support under these programs flows to low-cost areas.

H.   Subsequent Years.

It was noted above that the most recent possible embedded data should be used in each year's support calculation. Indeed, it may be that the data should be so fresh that they should be estimated for the upcoming year.[52]

In addition, hold-harmless calculations should be updated annually. This will ensure that legitimate transactions now in progress will be reflected in the hold-harmless base. For example, although the FCC has forbidden further increases in high cost support through sale of exchanges to small companies,[53] some such sales have already been completed. It would be unfair to the carriers and customers in these states if the effects of completed and allowed telephone exchange sales were to be ignored in the hold-harmless calculation.[54]

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51. Moreover, as a practical matter, so long as the high cost support is funded by a surcharge on a class of service (i.e., "interstate") it would be impractical if not impossible to exclude contribution from low-income individuals who happened to use that class of service.

52. An auditing provision would also be needed. See footnote 30, above.

53. This prohibition applies unless a carrier made a binding commitment before May 7, 1997 to purchase an exchange. Universal Service Order at ¶ 308.

54. This will require the FCC to continue to recalculate support under the existing system as though that system were still in effect. In particular, the FCC will have to calculate both high cost support and DEM weighting as though this plan had not been adopted.

I.   Lifetime of the Plan.

For a number of reasons, this model should be considered an interim solution. This is due in part to limitations in the model, and due in part to expected developments in the telecommunications industry.

The model includes embedded cost as a primary factor affecting the distribution of federal support. As facilities-based competition progresses, more and more investment will be made by competitive LECs. Competitive LECs do not, however, report their costs to the FCC, and these costs cannot be added to those filed by incumbent LECs. As facilities-based competitive LECs acquire a larger share of the local exchange market, their investment may become a significant share of the total investment in the public switched network. In that event, embedded cost data will increasingly understate total net investment, and any model that relies on average embedded cost in each state can become less reliable. When reported investment decreases to 70% or 80% of the total network, this model may need to be replaced, possibly by a bidding process.[55]

The model also includes, in Step 4, a hold-harmless calculation. Because of the methods that the FCC has used in the past to distribute federal support, this hold-harmless guarantee is primarily of benefit to smaller incumbent LECs. Many of these companies are rural telephone companies and are entitled to separate treatment under applicable FCC orders. To date, the FCC has not indicated any clear intent to reduce the support for these companies substantially and has left this question to subsequent rulemaking.[56] Nevertheless, after the passage of several years, policy makers might attach reduced importance to sustaining the hold-harmless expectation indefinitely.

The telecommunications market itself may also evolve in unexpected ways. This could invalidate some of the assumptions underlying the FCC's current policy on high cost areas and could equally invalidate the assumptions underlying this model. For example, the FCC requires that high

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55. The model bases support distributions for some states on the difference between the state's embedded average cost and the national average cost. Therefore, to the extent that a particular data error applies equally to all states, it could have a negligible effect on the distribution. However, at some time in the future, facilities-based competitive LECs may have so many lines that the embedded cost per line data from incumbent LECs will no longer represent a fair sample of the lines in the state. At that time the reported embedded investment would no longer be a reliable indicator of cost.

56. The FCC has stated an intention to establish a forward-looking economic cost mechanism for rural carriers. Universal Service Order at ¶ 252. The FCC also has stated that it will not base distributions to rural carriers on forward-looking cost until further review. *Id.* at ¶ 203. However, the FCC has also stated that it intends to pay only 25% of the cost of support, and this presumably applies to both rural and non-rural carriers. *Id.* at ¶ 269.

cost support be calculated on a fine geographic basis no larger than the wire center.[57] This
presupposes that competitive LECs will be free in each state to offer their service areas on a fine
geographic scale and also presupposes that resale rates will be de-averaged at a similar scale. As
states implement the Telecom Act over the next several years, those assumptions may not prove
accurate. In that event, it may be appropriate to calculate forward-looking support on a different
geographic scale.[58]

        Based upon these considerations, the FCC may want to reexamine this model after it has been
in place approximately four years. It may be appropriate to make major changes to the model at that
time or even to develop an entirely new model.

V. Benefits

        The proposed plan offers numerous benefits.

A.   Intrastate Purpose

        Under this plan, while the benefits vary from one state to another, all of the money produced
would be used by state commissions to reduce intrastate rates. This is consistent with the purpose of
the present high cost funding program and with the Act's requirement to achieve "reasonably
comparable rates."

        This plan is also more likely to produce reduced retail rates or to maintain existing rate levels.
Under the May 8 order, high cost support is used to reduce interstate access charges. Therefore, the
immediate beneficiaries of the FCC's program were interstate service providers who might then
choose to pass these cost reductions along in the form of rate reductions. If rates were reduced,
benefits would not necessarily flow to the states from which the contributions came, but, under the
Telecom Act,[59] would produce nationwide toll rate decreases.

        This plan does not provide any revenue for carriers providing services in the interstate
jurisdiction. If the FCC is concerned that access charges include implicit subsidies, it may want to
establish additional surcharges and distributions in order to convert existing implicit subsidies in the
interstate jurisdiction to explicit subsidies.

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57. *Universal Service Order* at ¶ 250(10).

58. Alternatively, competitive LECs may be able to identify low-cost and high profit customers
within a wire center and avoid serving other higher cost or lower volume customers. In that event,
even more geographically precise measurements of cost may be necessary.

59. 47 U.S.C. §254(g).

B.   Sufficiency

Assuming that the national average cost is "reasonably comparable" to urban costs,[60] this proposal, in conjunction with state-raised funds, would be sufficient to ensure that all rural areas have intrastate rates no higher than those "reasonably comparable" to the average rates in urban areas nationally.

This plan may require states to enact supplemental programs, as authorized under Section 254(f) of the Telecom Act. The details will depend upon several factors, including whether states de-average their retail and wholesale rates.

C.   Minimal Size

The total cost of this proposal, is estimated at $1.83 billion.[61] This is an increase from the current total support (for high cost and DEM weighting) of approximately $1.25 billion.[62]

This proposal would require a smaller fund than any plan that fully funds the results of a forward-looking cost model. Since those models generally calculate support on a wire-center-by-wire-center basis (or smaller), and since they do not take account of embedded costs in low cost areas, they tend to require much larger expenditures of federal funds. For example, under the HAI Cost model, full federal funding would have a total cost of $4.9 billion.[63]

D.   Intrastate Revenues Unaffected

This proposal would be financed by an explicit surcharge on the interstate revenues of interstate carriers. Intrastate revenues would not be affected.

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60. Alternatively, in the case of embedded costs, assuming that 105% of the national average is reasonably comparable to urban costs.

61. This estimate is based upon use of the HAI 5.0a Cost Model for forward-looking costs and full hold-harmless on DEM weighting for all companies, including average schedule companies. The data do not include the insular areas. Exclusion of DEM weighting for some average schedule companies should reduce this cost by approximately $90 million.

62. 1996 high cost support was $826 million, and DEM weighting was $428 million. Industry Analysis Division, Common Carrier Bureau, FCC, *Universal Service Support and Telephone Revenue by State*, January, 1998 at Tables 2 and 6. These figures include Alaska and the insular areas.

63. This estimate does not include rural Alaska or the insular areas.

E.   Compatible with Competition

1. Competitively Neutral

Federal funds would be distributed to state commissions, and the federal distribution would therefore be competitively neutral. In further distributing these funds, state commissions would also demonstrate, based on their plans approved by the FCC, that they would not establish a preference for a particular kind of carrier or technology.

This plan calculates support without regard to whether a carrier is a "rural" or a "non-rural" carrier. Therefore the plan would no longer discriminate against customers served by large local exchange carriers.[64]

2. Supports Development of Competition

A high cost plan should be compatible with the development of competition in the local exchange market. One important element in accomplishing this goal may be for state commissions to adopt aggressive pro-competition policies, and to rely upon forward-looking costs in setting unbundled network element costs.

For purposes of calculating high cost support, however, this plan utilizes the lesser of forward-looking and embedded costs. This is compatible with the development of competition in all areas. In particular, in areas where embedded cost is lower than forward-looking cost, this policy may be superior. For the reasons explained below, if support were distributed based only upon forward-looking cost, that support might not promote competition, and might even harm competition.

A competitive LEC will seek to provide service only if it expects to satisfy two conditions:

> (1) The competitor can provide service at prices that are competitive with the incumbent; and
> (2) The competitor's costs, prices and revenues will allow for a profit.

If USF support were distributed solely on a forward looking basis, the second test would be met. However, that is immaterial if the first condition can not be met.

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64. Current FCC rules provide additional high cost support if a high cost company has fewer than 200,000 lines and to all companies with fewer than 50,000 lines.

USF at forward-looking costs will not help meet the first condition if a competitor's costs are higher than those of the incumbent. Since the incumbent's rates are usually based directly or indirectly on its embedded or sunk costs, a CLEC with higher costs will simply not be able to compete, absent an explicit subsidy.

However, providing equal support to the incumbent and to the CLEC will not change this, even if that support is based on forward-looking costs. The incumbent can simply apply support to reduce rates further to levels below actual cost, thus making it even harder for the incumbent to compete. Indeed, if the incumbent receives support in excess of embedded cost, it could actually inhibit competition before it starts, since it offers the incumbent an opportunity to build a "war chest" to fight its first competitor.

F.   Incentive for Investment

Depending upon other factors, this plan offers many states the prospect of increased federal support soon after carriers in that state make additional investment in the existing network.[65] For these states, increased facilities investment will promptly result in increased support to the state, particularly since embedded cost data are used based upon projections rather than historical data.

G.   Compatible With Separations

This plan takes account of the jurisdictional separations of costs and revenues. Support to states is reduced, by an average of approximately 25%, based upon costs already covered in the interstate jurisdiction. While ensuring adequate federal support, this mechanism prevents double recovery.

H.   Compatible with State Policies

1.   State Distributions

This plan distributes support to carriers in a manner directed by the state commission, although the hold-harmless portion of distributions would be constrained by the historical eligibility of carriers.

Discretionary distributions by state commissions would be constrained by a state distribution plan approved in advance by the FCC. State commissions would need to develop these plans.

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65. Under current calculations, 17 states would receive support based upon embedded cost.

While this may be an added burden on states, it is one that will likely fall on states in any case if the existing FCC order is implemented.

State commissions would have significant discretion over the support distributed to individual carriers.[66] For this reason, state commissions will be able to coordinate federal high cost support with any supplemental state support. Indeed, several states already have high cost support mechanisms in place, and these states could be assured by this plan that federal funding distributions will not be incompatible with their existing programs.

State distribution of high cost funds may also make simpler any effort to tie support to service quality. State commissions are well situated to observe service quality in their states. If the FCC was able to provide periodic and comprehensive national data, state commissions might then choose to build incentives for service quality into their high cost distribution plans.

Distribution to state commissions will also minimize the effects of any residual errors in the forward looking cost models. First, because calculations will be made on a statewide basis rather than on a wire center basis (or smaller), errors arising from particular geographic circumstances will tend to disappear. By making the sample size larger, the models should be more accurate, at least as to some kinds of non-systematic errors. Second, under this plan relatively few states receive support based upon forward-looking cost. Therefore, for states receiving support on any other basis, any remaining errors in the forward-looking models cause no harm.

2.   State Rate Designs

Under the Telecom Act, states retain jurisdiction over intrastate rate designs, including whether to deaverage UNEs, whether to deaverage retail rates, and how to determine the size of service areas for ETCs. This plan will permit states to evolve all of these policies in an interrelated manner. No state would be required to establish a particular size unit for calculation of high cost support or for pricing.

I.   Earnings Based on Market Success

Because states will be able to coordinate high cost support policies with other competition policies (such as deaveraging of UNEs, deaveraging of retail services and the size of service areas) this plan is more likely to minimize the opportunity of carriers to make profits by exploiting the irregularities of state and federal regulatory policy.

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66. Hold-harmless support is an exception to this rule.

J.   Cost-Based System

This plan is based upon costs, rather than rates, and thus avoids any intrusion of uncontrollable variables, such as state decisions to allocate revenues between toll and local services. The plan takes account of the differences in average cost among states. Indeed, it uses that criterion as the chief basis for the distribution.

To the extent that a state chooses to deaverage rates, the plan could leave the state responsible to provide support for its own high cost areas from state-generated funds. This is appropriate given that states control important rate setting policies and the states are likely to differ considerably in the degree to which they deaverage rates and set the sizes of service areas assigned to competitive carriers. Federal support will ensure that even when states choose to levy supplemental charges to support high cost areas, they can still maintain overall rates that are reasonably comparable to rates in urban areas.

This plan uses embedded cost and forward-looking cost as independent limits on federal support. This ensures that the most economically efficient network is assumed when calculating high cost support. It also reduces the effect of any errors that may remain in forward-looking cost models.

K.   Single System

This plan combines the existing high cost program that applies to loop costs and the existing DEM weighting program that applies to switching costs. Several states appear to have either high loop costs or high switching costs, but not both. Since the statutory objective is reasonably comparable rates, and since rates are a function of all costs, combining loop and switching costs will produce a simpler solution than the existing dual programs.[67] This also is more efficient since it does not provide support to areas where loop or switching cost is high, but overall costs are moderate.

Combining loop, switch and trunking costs into a single plan is also consistent with the mechanisms underlying the forward-looking cost models. Those models estimate the cost characteristics of a network that can provide the services supported by universal service. That network necessarily includes some loop costs, but also some switching and trunking costs.

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    67. This is consistent with the support calculations made by forward looking models, which generally calculate loop, switching and trunking costs.

This plan also creates a unified high cost system for the country as a whole, and thereby applies to areas served by "rural companies" and areas served by "non-rural companies." The plan does not consider a carrier's size (e.g., more than 50,000 lines or more than 200,000 lines), only the characteristics of the service territory. Therefore, this plan would allow the FCC to abolish the questionable distinction in the May 8 order between rural customers who happen to be served by "rural carriers" and rural customers who happen to be served by "non-rural carriers."

The FCC has stated that it will appoint a "Rural Task Force." If the present plan is adopted, the role of that task force can be refocused. Rather than dealing solely with areas served by "rural companies," the Task Force can focus on adopting proxy model methodologies that accurately reflect costs in all rural areas, whether served by large or small companies.

As mentioned above, this plan envisions a single system for all companies. However, if the FCC maintains its present policy and uses different timetables for implementing changes for rural and for non-rural companies, the plan can be modified to deal only with "non-rural companies."[68] Such a modification would not be desirable, however, because it is not entirely consistent with the principle that states with low average costs, overall, may be expected to support their own high cost areas though a state universal service plan.

For both of these reasons, combination of rural and non-rural and combination of loop, switch and trunking costs, the alternative plan is simpler to design and administer. In particular, this plan will permit the FCC to avoid the many difficult decisions and rulemakings that lie ahead regarding high cost support for rural telephone companies. By combining rural and non-rural, and by combining loop and switch, this plan considerably simplifies the existing issue structure. The FCC can avoid anticipated rulemakings, now planned for 2001 or after, relating to support for rural carriers. This will somewhat simplify the process of implementing the Telecom Act for the FCC, and, on a substantive policy level, it will end the troubling distinctions in present law between carriers based upon their overall size.

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68. If this plan were implemented only for non-rural companies, the distribution would utilize data reflecting average costs only in areas served by those non-rural companies. This would change the apparent state-wide average costs that are an input into this plan, and thus would change, for most states, the apparent ability of the state to support its own high cost areas. In addition, implementing the plan only for non-rural companies might require adjustment to some of the design factors in the plan, such as the percentage of national costs considered to be reasonably comparable to urban rates.

L.   Hold-harmless

This plan includes hold-harmless protection, both for states as a whole and for individual companies. This increases the total cost of federal support. Nevertheless, it is generally consistent with the May 8 order, which promised rural telephone companies that they would not face any significant change in support levels until at least January 1, 2001.

Hold-harmless support should be appropriate until the FCC becomes convinced that the forward-looking cost models have become sufficiently precise that existing expectations of continued support can safely be set aside.

M.   Reduced Litigation Risk

This proposal could greatly reduce the uncertainty arising from pending litigation in the Fifth Circuit of the United States Court of Appeals. In that court, at least one party is seeking to determine whether the FCC has authority to levy charges based on both the interstate and intrastate revenues of interstate carriers. In addition, certain high cost states are seeking a ruling on whether the FCC's May 8 order, setting federal support at 25% of need, is sufficient to ensure that rates in rural and high cost areas will be reasonably comparable to rates in urban areas.

If the pending challenge to the 25% federal support level should succeed in court, the stakes are high. If the Court should rule in favor of the petitioners and rule that the FCC must provide 100% of the support calculated under a forward-looking cost model, the HAI cost model would predict that the size of the federal fund might need to be $4.9 billion, more than twice as large as the fund proposed here.

By adopting this plan, the FCC could moot both kinds of challenges. It would no longer be necessary for the FCC to assert jurisdiction to impose a charge on the intrastate revenues of interstate carriers, and issues arising from the 25% federal support level described in the May 8 order would be mooted. While subsequent litigation would of course still be possible, the probability of FCC success in such litigation might be higher than at present.

Appendix A - The Distribution of Costs

Forward-looking cost models perform detailed cost analyses in small geographic areas. They then sort these geographic areas into zones based upon the density of telephone lines per square mile. It is possible then to examine how density affects cost.[69]   The results clearly indicate that it is more expensive to provide telecommunications services in rural states than in more densely populated states.

Figure 1 shows, for five states, how forward-looking costs vary in the nine density zones used by the Hatfield model.

Fig. 1. Average Cost by Density - Five States
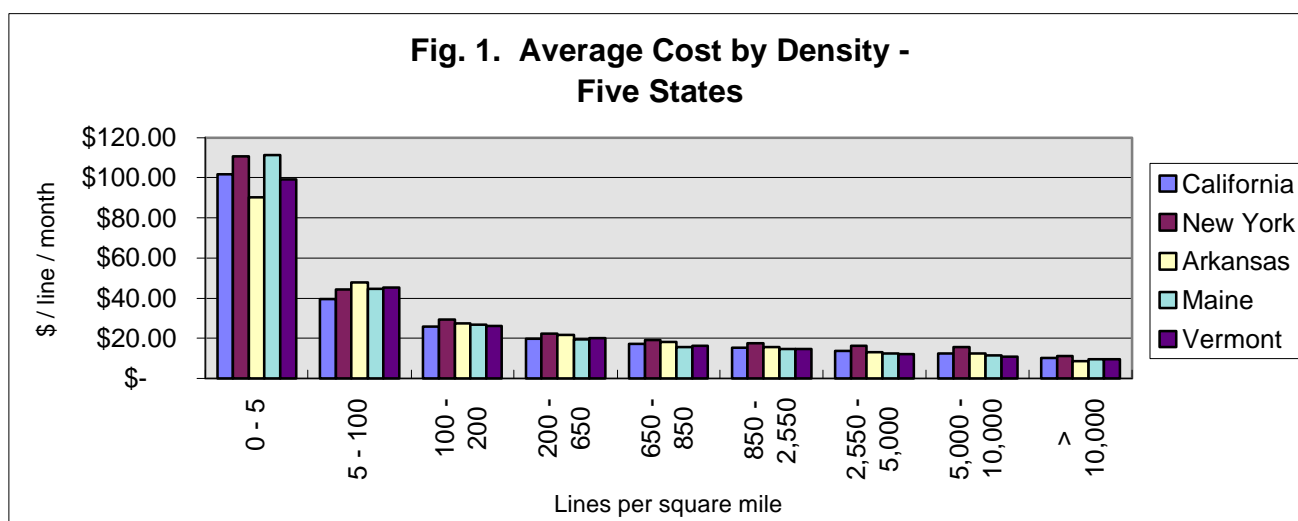
As Figure 1 illustrates, the Hatfield model predicts some cost variations from state to state, but comparatively larger variations from one density zone to another. For the most rural density zone (0 to 5 lines per square mile), costs are typically in the range of $100 per line per month.[70] In the second density zone (5 to 100 lines per square mile), costs are in the range of $40 to $45 per line per

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69. The following analysis is based upon the Hatfield model, version 3. No analysis has been performed using more recent versions of the model.

70. The Hatfield Model data used here was derived from the model author's run using standard design parameters. The five states shown are representative of urban and rural states. Nevertheless, costs in some states were higher or lower than the amounts shown here, particularly in the lowest density zone, from 0 to 5 lines per square mile.

month. Conversely, in the three density zones where density exceeds 2,550 lines per square mile, costs average $12.77 per month.

There is little uniformity from state to state, however, with regard to demographics. Figures 2 and 3 show the percentage of access lines found within each density zone for the same five states represented in Figure 1.

The two more urban states, California and New York, are represented in Figure 2. In California, 72% of the state's access lines are located in the three highest density zones. The Hatfield study reports the average weighted cost in these three zones in California to be $12.19 per line per month. In New York, 68% of the access lines are found in those same three densely populated zones with an average cost of $12.89 per line per month.

The combination of few high-cost lines and many low-cost lines within an urban state inevitably produces a low statewide average cost. Average costs predicted by the Hatfield model are $15.01 in California and $17.21 in New York. These states have lower statewide average costs than the national average cost of $20.52.

Fig. 2. Access Lines by Density -
Two Low Cost States
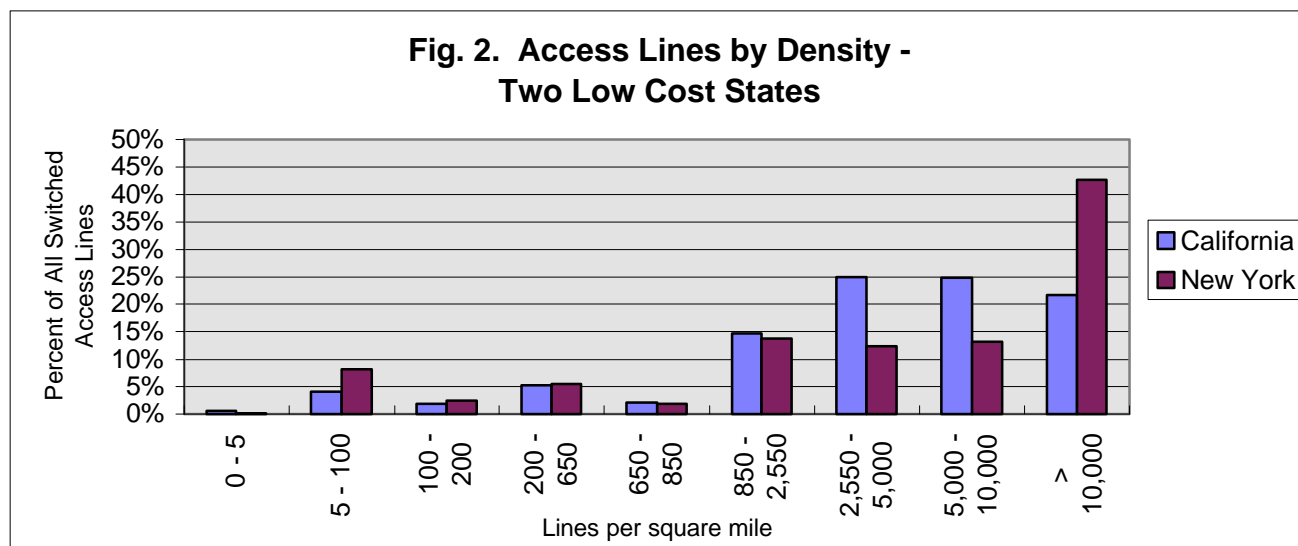
In rural states, settlement patterns are quite different. Figure 3 shows the corresponding data for Arkansas, Maine, and Vermont, three states that are more rural than either California or New York. The graph indicates that a greater percentage of access lines in these rural states are found in the lower density zones on the left side of the graph. Indeed, a significant portion of telephone customers in these states live in the second density zone (where density is between 5 to 100 lines per

square mile). The characteristic cost within this density zone is approximately $45 per line per month.[71]

Fig. 3. Access Lines by Density - Three High Cost States
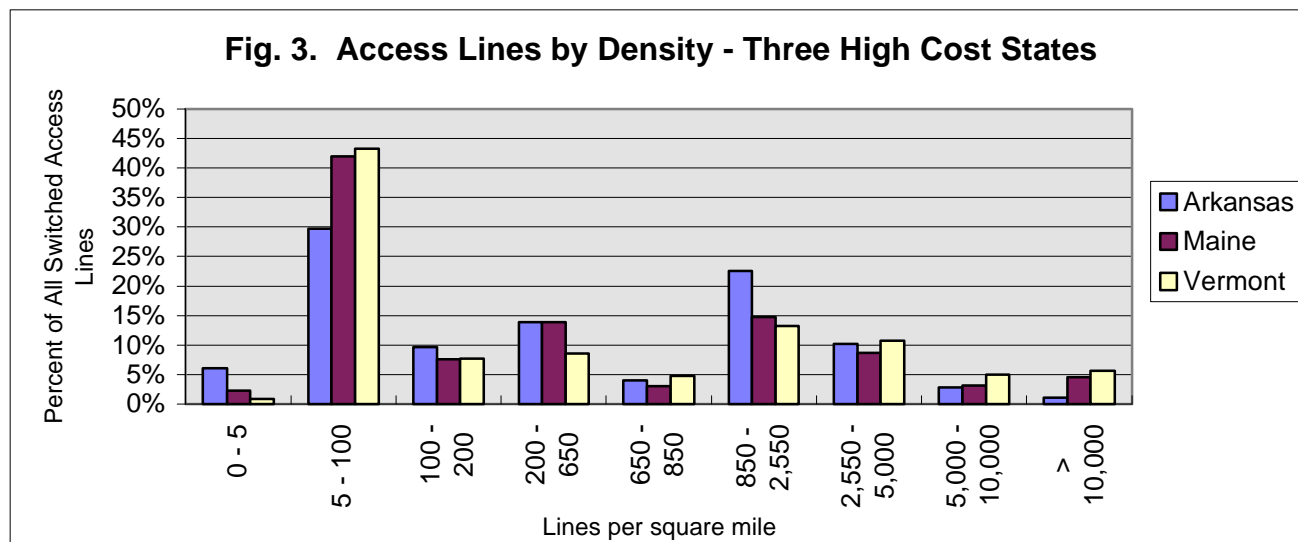
Figure 3 also shows that each of these three rural states has only a small proportion of its access lines located in the three highest density zones. Therefore these states have relatively few low-cost lines.

A state with a high percentage of its access lines in high cost areas generally will have a high average cost. Average costs predicted by the Hatfield model are $31.43 in Arkansas, $30.42 in Maine, and $29.45 in Vermont. The statewide average in all three states is about $10 higher than the national average cost.

Since a high proportion of access lines in these rural states are in low-density and high-cost areas, these states may also have a higher proportion of customers at risk from any rate de-averaging that might follow local exchange competition. While density is not the only determinant of high cost, this analysis demonstrates that some rural states have a high proportion of their access lines in high cost areas. These areas would be particularly vulnerable to rate increases, and the ensuing loss of customer penetration, if funding for high cost support is insufficient.

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71. Each of the three states also shows increased population in the fifth density zone. This presumably results from the effects of small cities, like Little Rock, Portland, and Burlington. The cost characteristic of this density zone is about $15 per month.

Appendix B - Sources of Embedded Cost Data

Embedded data were derived from the following sources.

(a) <u>Loop Cost.</u>

This was set equal to the 1996 unseparated NTS revenue requirement[72] of all carriers, as reported to the FCC and as further reported in the 1997 Monitoring Report prepared by the Docket 80-286 Joint Board staff.

(b) <u>Switching Cost.</u>

(i) <u>For Cost Companies</u> - Data were extracted from the same NECA filing that was used for the loop studies. Contained in this data is Account 2210, Central Office Equipment (COE) Switching Investment which was used to determine Cat 2 (Tandem) and Cat 3 (Local Switching) by cost company study area. Using ARMIS 4304 data, GSF factors were calculated to supplement the COE data. Generic "small company" factors were developed using the average of all Tier 1 LECs excluding the RBOCs. Individual factors were developed at the study area level for the Tier 1 LECs. The revenue requirements were divided by USF loops to obtain a Switching Revenue Requirements/Loop, by study area.

(ii) <u>For Average Schedule Companies</u> - The data of local switching support (weighted DEM) amounts by study area was obtained from a filing with USAC. This data was generated by multiplying the COE revenue requirements by a set of factors based upon line size and minutes of use per line. The factors used are a part of the USAC filing. The COE revenue requirements were obtained by dividing local switching support (weighted DEM) by the factors described above. Using the "small company" GSF factors developed above, the GSF amounts were added to the direct cost. The revenue requirements were divided by USF loops to obtain a Switching Revenue Requirement/Loop, by study area.

(c) <u>Trunking Cost.</u>

VI. Total Cable & Wire (C&W) Investments and Expenses and Total COE Transmission Investments and Expenses by cost company were extracted from the NECA data. Using ARMIS data, a factor was developed for message trunk investment to total investment for both COE - Transmission and C&W. This factor approximates the effect of the removal of loop investment (both message and private line), and private line trunk investment. The ratio is unique for each Tier 1 study area. Study area trunking revenue requirements were then developed. The revenue requirements were divided by USF loops to obtain a Trunking Revenue Requirement/Loop, by study area.

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72. 47 C.F.R. § 36.621

High Cost Modeling Project New Support Summary 4/22/98 11:31	
Step 1:	Calculate 75% of excess forward looking cost above stated threshold.
Step 2:	Calculate 75% of excess embedded cost above stated threshold.
Step 3:	Calculate the lesser of results 1 and 2.
Step 4:	Calculate Hold-harmless payments (see later sheets for explanation)
Step 5:	Federal support equals greater of results 3 and 4.

Federal Support to Intrastate Jurisdiction

	Step 1: Calculate Forward-Looking Support		Step 2: Calculate Embedded Cost Support		Step 3: Lesser of Steps 1 and 2		Step 4: Hold Harmless		Step 5: Greater of Steps 3 & 4		Result: Support for State Determined by which Formula?
	Threshold= 100% or = $ 19.67		Threshold= 105% or = $ 35.58								
	per line per mo. ($ / l / mo)	Annual Total ($ millions)	per line per mo. ($ / l / mo)	Annual Total ($ millions)	per line per mo. ($ / l / mo)	Annual Total ($ millions)	per line per mo. ($ / l / mo)	Annual Total ($ millions)	per line per mo. ($ / l / mo)	Annual Total ($ millions)	
Alaska /1	$ 11.60	$ 53	$ 11.60	$ 53	$ 11.60	$ 53	$ 9.09	$ 41	$ 11.60	$ 53	Forward-Looking
Alabama	$ 6.01	$ 167	$ 0.49	$ 14	$ 0.49	$ 14	$ 1.18	$ 33	$ 1.18	$ 33	Hold-Harmless
Arizona	$ -	$ -	$ 0.79	$ 24	$ -	$ -	$ 1.34	$ 41	$ 1.34	$ 41	Hold-Harmless
Arkansas	$ 8.24	$ 130	$ 6.29	$ 99	$ 6.29	$ 99	$ 3.52	$ 56	$ 6.29	$ 99	Embedded
California	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.15	$ 38	$ 0.15	$ 38	Hold-Harmless
Colorado	$ 1.99	$ 59	$ 3.29	$ 97	$ 1.99	$ 59	$ 1.14	$ 34	$ 1.99	$ 59	Forward-Looking
Connecticut	$ -	$ -	$ 0.63	$ 15	$ -	$ -	$ 0.52	$ 13	$ 0.52	$ 13	Hold-Harmless
Delaware	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
District of Columbia	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Florida	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.50	$ 59	$ 0.50	$ 59	Hold-Harmless
Georgia	$ 1.47	$ 80	$ 2.77	$ 150	$ 1.47	$ 80	$ 1.01	$ 55	$ 1.47	$ 80	Forward-Looking
Hawaii	$ -	$ -	$ 4.03	$ 34	$ -	$ -	$ 0.39	$ 3	$ 0.39	$ 3	Hold-Harmless
Idaho	$ 7.88	$ 61	$ 3.54	$ 27	$ 3.54	$ 27	$ 3.43	$ 26	$ 3.54	$ 27	Embedded
Illinois	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.18	$ 16	$ 0.18	$ 16	Hold-Harmless
Indiana	$ 0.80	$ 32	$ -	$ -	$ -	$ -	$ 0.29	$ 11	$ 0.29	$ 11	Hold-Harmless
Iowa	$ 7.01	$ 130	$ -	$ -	$ -	$ -	$ 1.09	$ 20	$ 1.09	$ 20	Hold-Harmless
Kansas	$ 7.17	$ 131	$ 3.31	$ 60	$ 3.31	$ 60	$ 2.65	$ 48	$ 3.31	$ 60	Embedded
Kentucky	$ 4.51	$ 107	$ 3.04	$ 72	$ 3.04	$ 72	$ 0.85	$ 20	$ 3.04	$ 72	Embedded
Louisiana	$ 1.72	$ 48	$ 3.12	$ 88	$ 1.72	$ 48	$ 1.79	$ 50	$ 1.79	$ 50	Hold-Harmless
Maine	$ 7.27	$ 68	$ 5.42	$ 50	$ 5.42	$ 50	$ 1.19	$ 11	$ 5.42	$ 50	Embedded
Maryland	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ 0	$ 0.01	$ 0	Hold-Harmless
Massachusetts	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ 0	$ 0.01	$ 0	Hold-Harmless
Michigan	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.35	$ 25	$ 0.35	$ 25	Hold-Harmless
Minnesota	$ 3.92	$ 131	$ -	$ -	$ -	$ -	$ 0.78	$ 26	$ 0.78	$ 26	Hold-Harmless
Mississippi	$ 9.60	$ 146	$ 7.00	$ 107	$ 7.00	$ 107	$ 1.53	$ 23	$ 7.00	$ 107	Embedded
Missouri	$ 3.92	$ 150	$ 0.65	$ 25	$ 0.65	$ 25	$ 1.03	$ 40	$ 1.03	$ 40	Hold-Harmless
Montana	$ 25.09	$ 147	$ 7.89	$ 46	$ 7.89	$ 46	$ 5.81	$ 34	$ 7.89	$ 46	Embedded
Nebraska	$ 12.26	$ 141	$ 3.03	$ 35	$ 3.03	$ 35	$ 1.39	$ 16	$ 3.03	$ 35	Embedded
Nevada	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.59	$ 8	$ 0.59	$ 8	Hold-Harmless
New Hampshire	$ 1.74	$ 16	$ 3.25	$ 30	$ 1.74	$ 16	$ 0.80	$ 7	$ 1.74	$ 16	Forward-Looking
New Jersey	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.05	$ 3	$ 0.05	$ 3	Hold-Harmless
New Mexico	$ 8.65	$ 90	$ 5.12	$ 53	$ 5.12	$ 53	$ 2.85	$ 30	$ 5.12	$ 53	Embedded
New York	$ -	$ -	$ 1.49	$ 220	$ -	$ -	$ 0.51	$ 76	$ 0.51	$ 76	Hold-Harmless
North Carolina	$ 3.53	$ 189	$ 1.39	$ 74	$ 1.39	$ 74	$ 0.53	$ 28	$ 1.39	$ 74	Embedded
North Dakota	$ 25.25	$ 119	$ 2.42	$ 11	$ 2.42	$ 11	$ 3.38	$ 16	$ 3.38	$ 16	Hold-Harmless
Ohio	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.12	$ 10	$ 0.12	$ 10	Hold-Harmless
Oklahoma	$ 6.57	$ 147	$ 1.98	$ 44	$ 1.98	$ 44	$ 1.98	$ 44	$ 1.98	$ 44	Hold-Harmless
Oregon	$ 2.35	$ 54	$ 1.54	$ 35	$ 1.54	$ 35	$ 1.16	$ 27	$ 1.54	$ 35	Embedded
Pennsylvania	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.12	$ 11	$ 0.12	$ 11	Hold-Harmless
Rhode Island	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
South Carolina	$ 2.94	$ 72	$ 4.33	$ 106	$ 2.94	$ 72	$ 1.47	$ 36	$ 2.94	$ 72	Forward-Looking
South Dakota	$ 24.26	$ 115	$ 2.94	$ 14	$ 2.94	$ 14	$ 2.64	$ 13	$ 2.94	$ 14	Embedded
Tennessee	$ 2.79	$ 106	$ -	$ -	$ -	$ -	$ 0.82	$ 31	$ 0.82	$ 31	Hold-Harmless
Texas	$ 0.31	$ 41	$ 1.06	$ 144	$ 0.31	$ 41	$ 0.92	$ 125	$ 0.92	$ 125	Hold-Harmless
Utah	$ 1.23	$ 15	$ -	$ -	$ -	$ -	$ 1.03	$ 13	$ 1.03	$ 13	Hold-Harmless
Vermont	$ 6.36	$ 29	$ 9.53	$ 43	$ 6.36	$ 29	$ 1.89	$ 9	$ 6.36	$ 29	Forward-Looking
Virginia	$ 0.35	$ 18	$ -	$ -	$ -	$ -	$ 0.20	$ 10	$ 0.20	$ 10	Hold-Harmless
Washington	$ -	$ -	$ 0.66	$ 27	$ -	$ -	$ 1.11	$ 44	$ 1.11	$ 44	Hold-Harmless
West Virginia	$ 10.02	$ 112	$ 5.09	$ 57	$ 5.09	$ 57	$ 1.81	$ 20	$ 5.09	$ 57	Embedded
Wisconsin	$ 1.74	$ 66	$ -	$ -	$ -	$ -	$ 0.99	$ 38	$ 0.99	$ 38	Hold-Harmless
Wyoming	$ 15.05	$ 49	$ 10.23	$ 33	$ 10.23	$ 33	$ 5.15	$ 17	$ 10.23	$ 33	Embedded
Total		$ 2,966		$ 1,836		$ 1,204		$ 1,315		$ 1,826	
Maximum Value	$ 25.25		$ 10.23		$ 10.23		$ 5.81		$ 10.23	(note 1)	
Minimum Value	$ -		$ -		$ -		$ -		$ -		

Number of states under:	
- Forward-Looking Cost	5
- Embedded Cost	14
- Hold-Harmless	28
- No Support	3

Federal Rate Required:	2.2155%
System Out of Balance by:	$ 0.01 million

Note 1: The totals shown here are probably overestimated, because DEM Weighting hold-harmless here includes 100% of past support for all average schedule companies.

/1 Because forward looking cost is not available for Alaska, embedded data have been copied from step 2 into step 1.

High Cost Modeling Project
Hold-Harmless Calculation - Part A

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	Type A Hold-Harmless (Support Based)			Type B Hold Harmless (Contribution Based)	Hold-Harmless Support (Step 4)
	Existing Support		Type A Hold-Harmless		
	High Cost Support	DEM Weighting (note 1)			
	(millions)	(millions)	(millions)	(millions)	(millions)
Alaska	$ 28.6	$ 12.5	$ 41.2	$ -	$ 41.2
Alabama	$ 21.8	$ 11.0	$ 32.8	$ -	$ 32.8
Arizona	$ 19.3	$ 6.5	$ 25.8	$ 15.0	$ 40.8
Arkansas	$ 46.2	$ 9.5	$ 55.7	$ -	$ 55.7
California	$ 28.8	$ 9.2	$ 38.0	$ -	$ 38.0
Colorado	$ 29.2	$ 4.3	$ 33.5	$ -	$ 33.5
Connecticut	$ -	$ 1.2	$ 1.2	$ 11.3	$ 12.5
Delaware	$ -	$ -	$ -	$ -	$ -
District of Columbia	$ -	$ -	$ -	$ -	$ -
Florida	$ 12.3	$ 5.9	$ 18.1	$ 40.8	$ 58.9
Georgia	$ 41.8	$ 12.8	$ 54.6	$ -	$ 54.6
Hawaii	$ -	$ 0.6	$ 0.6	$ 2.6	$ 3.2
Idaho	$ 19.5	$ 6.9	$ 26.4	$ -	$ 26.4
Illinois	$ 5.5	$ 10.8	$ 16.3	$ -	$ 16.3
Indiana	$ 2.9	$ 8.5	$ 11.5	$ -	$ 11.5
Iowa	$ 4.4	$ 15.7	$ 20.1	$ -	$ 20.1
Kansas	$ 36.3	$ 12.2	$ 48.5	$ -	$ 48.5
Kentucky	$ 14.3	$ 6.1	$ 20.3	$ -	$ 20.3
Louisiana	$ 42.0	$ 8.2	$ 50.2	$ -	$ 50.2
Maine	$ 4.8	$ 6.3	$ 11.0	$ -	$ 11.0
Maryland	$ -	$ 0.5	$ 0.5	$ -	$ 0.5
Massachusetts	$ 0.0	$ 0.3	$ 0.3	$ -	$ 0.3
Michigan	$ 13.9	$ 11.3	$ 25.2	$ -	$ 25.2
Minnesota	$ 8.1	$ 18.0	$ 26.1	$ -	$ 26.1
Mississippi	$ 18.4	$ 4.9	$ 23.3	$ -	$ 23.3
Missouri	$ 29.7	$ 10.0	$ 39.6	$ -	$ 39.6
Montana	$ 23.8	$ 10.3	$ 34.0	$ -	$ 34.0
Nebraska	$ 6.1	$ 9.9	$ 16.0	$ -	$ 16.0
Nevada	$ 3.3	$ 4.6	$ 7.9	$ -	$ 7.9
New Hampshire	$ 2.6	$ 4.8	$ 7.4	$ -	$ 7.4
New Jersey	$ 2.1	$ 1.2	$ 3.3	$ -	$ 3.3
New Mexico	$ 19.4	$ 10.1	$ 29.6	$ -	$ 29.6
New York	$ 9.9	$ 20.9	$ 30.8	$ 45.1	$ 75.9
North Carolina	$ 21.9	$ 6.3	$ 28.2	$ -	$ 28.2
North Dakota	$ 4.7	$ 11.3	$ 16.0	$ -	$ 16.0
Ohio	$ 4.5	$ 5.1	$ 9.6	$ -	$ 9.6
Oklahoma	$ 27.2	$ 17.2	$ 44.3	$ -	$ 44.3
Oregon	$ 18.5	$ 8.2	$ 26.6	$ -	$ 26.6
Pennsylvania	$ 1.4	$ 10.0	$ 11.4	$ -	$ 11.4
Rhode Island	$ -	$ -	$ -	$ -	$ -
South Carolina	$ 23.3	$ 12.7	$ 36.0	$ -	$ 36.0
South Dakota	$ 2.8	$ 9.7	$ 12.5	$ -	$ 12.5
Tennessee	$ 8.1	$ 11.4	$ 19.5	$ 11.7	$ 31.2
Texas	$ 77.0	$ 19.3	$ 96.3	$ 28.7	$ 125.0
Utah	$ 2.9	$ 4.5	$ 7.5	$ 5.2	$ 12.7
Vermont	$ 3.7	$ 4.9	$ 8.6	$ -	$ 8.6
Virginia	$ 4.8	$ 5.4	$ 10.2	$ -	$ 10.2
Washington	$ 23.1	$ 7.6	$ 30.6	$ 13.8	$ 44.4
West Virginia	$ 17.0	$ 3.2	$ 20.2	$ -	$ 20.2
Wisconsin	$ 13.0	$ 24.8	$ 37.8	$ -	$ 37.8
Wyoming	$ 12.7	$ 4.1	$ 16.9	$ -	$ 16.9
Total	$ 733	$ 408	$ 1,141	$ 174	$ 1,315

Note 1: DEM weighting amounts shown here include all average schedule companies, and thus overestimate support.

High Cost Modeling Project
Hold-Harmless Calculation - Part B

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	Type B Hold-Harmless - Contribution Based									
	New System With Type A Hold-Harmless Included			Existing System	Increased	Embedded Costs		Type B	Check	Interstate
				Net	Net	Percent of	Switch : Thres-hold =	Hold	Sum	Revenues
	Support	Contrib-ution	Net Pay-In (if > 0)	Pay-In (if > 0)	Pay-In (if > 0)	National Average	100% of N/Avg	Harmless Support		
	(millions)	(millions)	(millions)	(millions)	(millions)		(On = 1)	(millions)		
Alaska	$ 52.6	$ 4.4	$ -	$ -	$ -	151%	1	$ -		
Alabama	$ 32.8	$ 22.5	$ -	$ -	$ -	107%	1	$ -		
Arizona	$ 25.8	$ 32.3	$ 6.6	$ -	$ 6.6	108%	1	$ 15.0	(0.0)	1,613.4
Arkansas	$ 99.5	$ 13.6	$ -	$ -	$ -	130%	1	$ -		
California	$ 38.0	$ 160.1	$ 122.1	$ 105.6	$ 16.5	85%	0	$ -		
Colorado	$ 58.5	$ 31.9	$ -	$ -	$ -	118%	1	$ -		
Connecticut	$ 1.2	$ 26.4	$ 25.2	$ 16.7	$ 8.5	107%	1	$ 11.3	0.0	1,317
Delaware	$ -	$ 6.4	$ 6.4	$ 4.2	$ 2.2	78%	0	$ -		
District of Columbia	$ -	$ 9.5	$ 9.5	$ 6.8	$ 2.6	58%	0	$ -		
Florida	$ 18.1	$ 107.3	$ 89.2	$ 59.7	$ 29.5	103%	1	$ 40.8	(0.0)	5,356
Georgia	$ 79.7	$ 54.4	$ -	$ -	$ -	116%	1	$ -		
Hawaii	$ 0.6	$ 6.8	$ 6.2	$ 4.3	$ 1.9	121%	1	$ 2.6	(0.0)	342
Idaho	$ 27.3	$ 8.4	$ -	$ -	$ -	119%	1	$ -		
Illinois	$ 16.3	$ 69.8	$ 53.5	$ 41.2	$ 12.3	83%	0	$ -		
Indiana	$ 11.5	$ 30.2	$ 18.7	$ 12.8	$ 5.9	94%	0	$ -		
Iowa	$ 20.1	$ 16.1	$ -	$ -	$ -	101%	1	$ -		
Kansas	$ 60.4	$ 16.1	$ -	$ -	$ -	118%	1	$ -		
Kentucky	$ 72.5	$ 22.8	$ -	$ -	$ -	117%	1	$ -		
Louisiana	$ 50.2	$ 22.4	$ -	$ -	$ -	117%	1	$ -		
Maine	$ 50.5	$ 8.0	$ -	$ -	$ -	126%	1	$ -		
Maryland	$ 0.5	$ 36.9	$ 36.4	$ 25.2	$ 11.2	87%	0	$ -		
Massachusetts	$ 0.3	$ 43.7	$ 43.4	$ 33.4	$ 10.0	97%	0	$ -		
Michigan	$ 25.2	$ 45.4	$ 20.3	$ 16.2	$ 4.1	89%	0	$ -		
Minnesota	$ 26.1	$ 27.6	$ 1.5	$ -	$ 1.5	97%	0	$ -		
Mississippi	$ 106.7	$ 13.6	$ -	$ -	$ -	133%	1	$ -		
Missouri	$ 39.6	$ 30.9	$ -	$ -	$ -	108%	1	$ -		
Montana	$ 46.2	$ 6.1	$ -	$ -	$ -	136%	1	$ -		
Nebraska	$ 34.9	$ 10.4	$ -	$ -	$ -	117%	1	$ -		
Nevada	$ 7.9	$ 15.7	$ 7.7	$ 1.3	$ 6.4	82%	0	$ -		
New Hampshire	$ 16.1	$ 11.1	$ -	$ -	$ -	118%	1	$ -		
New Jersey	$ 3.3	$ 73.4	$ 70.1	$ 46.5	$ 23.6	81%	0	$ -		
New Mexico	$ 53.0	$ 11.6	$ -	$ -	$ -	125%	1	$ -		
New York	$ 30.8	$ 125.5	$ 94.7	$ 62.9	$ 31.8	111%	1	$ 45.1	0.0	6,263
North Carolina	$ 74.1	$ 46.0	$ -	$ 4.7	$ (4.7)	110%	1	$ -		
North Dakota	$ 16.0	$ 5.2	$ -	$ -	$ -	115%	1	$ -		
Ohio	$ 9.6	$ 61.5	$ 51.9	$ 37.0	$ 14.8	95%	0	$ -		
Oklahoma	$ 44.3	$ 18.2	$ -	$ -	$ -	113%	1	$ -		
Oregon	$ 35.3	$ 21.2	$ -	$ -	$ -	111%	1	$ -		
Pennsylvania	$ 11.4	$ 73.4	$ 61.9	$ 44.1	$ 17.8	84%	0	$ -		
Rhode Island	$ -	$ 7.4	$ 7.4	$ 5.1	$ 2.2	97%	0	$ -		
South Carolina	$ 72.0	$ 23.0	$ -	$ -	$ -	122%	1	$ -		
South Dakota	$ 13.9	$ 5.2	$ -	$ -	$ -	117%	1	$ -		
Tennessee	$ 19.5	$ 32.7	$ 13.3	$ 5.0	$ 8.3	105%	1	$ 11.7	(0.0)	1,633
Texas	$ 96.3	$ 98.0	$ 1.7	$ -	$ 1.7	109%	1	$ 28.7	0.0	4,891
Utah	$ 7.5	$ 12.2	$ 4.7	$ 0.8	$ 3.9	101%	1	$ 5.2	0.0	607
Vermont	$ 29.0	$ 5.2	$ -	$ -	$ -	142%	1	$ -		
Virginia	$ 10.2	$ 48.3	$ 38.0	$ 22.4	$ 15.6	93%	0	$ -		
Washington	$ 30.6	$ 36.4	$ 5.8	$ -	$ 5.8	108%	1	$ 13.8	(0.0)	1,816
West Virginia	$ 56.9	$ 9.9	$ -	$ -	$ -	125%	1	$ -		
Wisconsin	$ 37.8	$ 26.6	$ -	$ -	$ -	88%	0	$ -		
Wyoming	$ 33.5	$ 4.0	$ -	$ -	$ -	145%	1	$ -		
Total	$ 1,652	$ 1,652	$ 796	$ 556	$ 240		34	$ 174	(0.0)	23,838

82,416

29%

	Contributions Under Current System \1			Support Under Current System			Net Benefit
	High Cost Fund (000s)	DEM Weighting (000s)	Total (000s)	High Cost Fund (000s)	DEM Weighting (000s)	Total (000s)	Total (000s)
Alaska	$ 1,848	$ 1,140	$ 2,989	$ 28,649	$ 12,520	$ 41,169	$ 38,180
Alabama	$ 11,621	$ 5,747	$ 17,368	$ 21,772	$ 11,044	$ 32,816	$ 15,448
Arizona	$ 12,564	$ 8,165	$ 20,729	$ 19,284	$ 6,478	$ 25,763	$ 5,033
Arkansas	$ 6,704	$ 3,477	$ 10,182	$ 46,203	$ 9,542	$ 55,745	$ 45,563
California	$ 103,056	$ 40,526	$ 143,582	$ 28,822	$ 9,195	$ 38,017	$ (105,565)
Colorado	$ 12,390	$ 8,400	$ 20,791	$ 29,211	$ 4,301	$ 33,513	$ 12,722
Connecticut	$ 10,592	$ 7,299	$ 17,891	$ -	$ 1,229	$ 1,229	$ (16,661)
Delaware	$ 2,427	$ 1,803	$ 4,230	$ -	$ -	$ -	$ (4,230)
District of Columbia	$ 4,015	$ 2,805	$ 6,820	$ -	$ -	$ -	$ (6,820)
Florida	$ 49,805	$ 28,013	$ 77,817	$ 12,263	$ 5,853	$ 18,116	$ (59,702)
Georgia	$ 22,247	$ 13,222	$ 35,469	$ 41,814	$ 12,822	$ 54,636	$ 19,168
Hawaii	$ 3,202	$ 1,749	$ 4,951	$ -	$ 645	$ 645	$ (4,306)
Idaho	$ 3,188	$ 2,140	$ 5,329	$ 19,502	$ 6,904	$ 26,406	$ 21,078
Illinois	$ 38,727	$ 18,796	$ 57,523	$ 5,513	$ 10,806	$ 16,318	$ (41,205)
Indiana	$ 16,246	$ 8,033	$ 24,279	$ 2,917	$ 8,550	$ 11,467	$ (12,813)
Iowa	$ 7,781	$ 4,253	$ 12,033	$ 4,404	$ 15,650	$ 20,054	$ 8,021
Kansas	$ 7,734	$ 4,038	$ 11,772	$ 36,274	$ 12,186	$ 48,461	$ 36,688
Kentucky	$ 9,874	$ 4,998	$ 14,872	$ 14,274	$ 6,070	$ 20,345	$ 5,472
Louisiana	$ 11,790	$ 5,656	$ 17,446	$ 41,966	$ 8,228	$ 50,194	$ 32,748
Maine	$ 3,928	$ 1,999	$ 5,927	$ 4,765	$ 6,276	$ 11,041	$ 5,114
Maryland	$ 15,881	$ 9,831	$ 25,712	$ -	$ 498	$ 498	$ (25,214)
Massachusetts	$ 21,604	$ 12,170	$ 33,774	$ 7	$ 332	$ 339	$ (33,435)
Michigan	$ 29,675	$ 11,670	$ 41,345	$ 13,924	$ 11,259	$ 25,182	$ (16,163)
Minnesota	$ 14,203	$ 6,673	$ 20,877	$ 8,131	$ 17,992	$ 26,124	$ 5,247
Mississippi	$ 6,477	$ 3,569	$ 10,046	$ 18,404	$ 4,913	$ 23,317	$ 13,270
Missouri	$ 15,944	$ 8,039	$ 23,983	$ 29,681	$ 9,967	$ 39,648	$ 15,664
Montana	$ 2,506	$ 1,606	$ 4,112	$ 23,760	$ 10,287	$ 34,048	$ 29,936
Nebraska	$ 4,828	$ 2,639	$ 7,467	$ 6,124	$ 9,882	$ 16,005	$ 8,538
Nevada	$ 5,589	$ 3,674	$ 9,263	$ 3,291	$ 4,625	$ 7,916	$ (1,347)
New Hampshire	$ 3,917	$ 2,897	$ 6,814	$ 2,571	$ 4,839	$ 7,409	$ 595
New Jersey	$ 30,058	$ 19,682	$ 49,740	$ 2,129	$ 1,153	$ 3,282	$ (46,458)
New Mexico	$ 4,236	$ 2,908	$ 7,145	$ 19,438	$ 10,119	$ 29,557	$ 22,412
New York	$ 60,164	$ 33,525	$ 93,689	$ 9,913	$ 20,897	$ 30,809	$ (62,880)
North Carolina	$ 21,681	$ 11,214	$ 32,895	$ 21,925	$ 6,308	$ 28,233	$ (4,661)
North Dakota	$ 1,843	$ 1,094	$ 2,938	$ 4,652	$ 11,317	$ 15,969	$ 13,031
Ohio	$ 32,405	$ 14,267	$ 46,672	$ 4,506	$ 5,138	$ 9,644	$ (37,028)
Oklahoma	$ 9,485	$ 4,821	$ 14,306	$ 27,165	$ 17,182	$ 44,347	$ 30,041
Oregon	$ 9,612	$ 6,100	$ 15,712	$ 18,454	$ 8,152	$ 26,606	$ 10,894
Pennsylvania	$ 37,047	$ 18,531	$ 55,578	$ 1,417	$ 10,012	$ 11,429	$ (44,149)
Rhode Island	$ 3,134	$ 2,004	$ 5,138	$ -	$ -	$ -	$ (5,138)
South Carolina	$ 10,209	$ 5,848	$ 16,057	$ 23,333	$ 12,654	$ 35,988	$ 19,931
South Dakota	$ 2,004	$ 1,251	$ 3,254	$ 2,809	$ 9,723	$ 12,533	$ 9,278
Tennessee	$ 15,984	$ 8,471	$ 24,455	$ 8,093	$ 11,380	$ 19,474	$ (4,981)
Texas	$ 55,565	$ 24,144	$ 79,709	$ 76,977	$ 19,307	$ 96,284	$ 16,575
Utah	$ 5,123	$ 3,132	$ 8,255	$ 2,906	$ 4,547	$ 7,453	$ (803)
Vermont	$ 1,902	$ 1,350	$ 3,251	$ 3,739	$ 4,880	$ 8,618	$ 5,367
Virginia	$ 19,593	$ 13,066	$ 32,658	$ 4,823	$ 5,419	$ 10,242	$ (22,417)
Washington	$ 17,016	$ 9,406	$ 26,422	$ 23,076	$ 7,570	$ 30,646	$ 4,223
West Virginia	$ 4,404	$ 2,605	$ 7,008	$ 16,967	$ 3,245	$ 20,212	$ 13,204
Wisconsin	$ 15,911	$ 6,800	$ 22,711	$ 12,958	$ 24,841	$ 37,799	$ 15,088
Wyoming	$ 1,427	$ 1,106	$ 2,534	$ 12,721	$ 4,134	$ 16,855	$ 14,322
US Average							
Calculated Total	$ 817,323	$ 425,210	$ 1,242,532	$ 732,877	$ 408,354	$ 1,141,231	$ (101,302)

\1 Source: FCC Publication, Universal Service Support and Telephone Revenue by State, January, 1998

	High Cost Modeling Project Results of New Plan - Net Gain or Loss

4/22/98 11:31

	This Plan Compared to Existing Federal Program						Net Gain
	Existing Program			This Plan			
	Contri-bution	Support	Benefit	Contri-bution	Support	Benefit	Net Gain
	(millions)	(millions)	(millions)	(millions)	(millions)	(millions)	(millions)
Alaska	$ 3.0	$ 41.2	$ 38.2	$ 4.9	$ 52.6	$ 47.7	$ 9.5
Alabama	$ 17.4	$ 32.8	$ 15.4	$ 24.9	$ 32.8	$ 7.9	$ (7.6)
Arizona	$ 20.7	$ 25.8	$ 5.0	$ 35.7	$ 40.8	$ 5.0	$ (0.0)
Arkansas	$ 10.2	$ 55.7	$ 45.6	$ 15.0	$ 99.5	$ 84.4	$ 38.9
California	$ 143.6	$ 38.0	$ (105.6)	$ 177.0	$ 38.0	$ (138.9)	$ (33.4)
Colorado	$ 20.8	$ 33.5	$ 12.7	$ 35.3	$ 58.5	$ 23.2	$ 10.5
Connecticut	$ 17.9	$ 1.2	$ (16.7)	$ 29.2	$ 12.5	$ (16.7)	$ 0.0
Delaware	$ 4.2	$ -	$ (4.2)	$ 7.1	$ -	$ (7.1)	$ (2.9)
District of Columbia	$ 6.8	$ -	$ (6.8)	$ 10.5	$ -	$ (10.5)	$ (3.6)
Florida	$ 77.8	$ 18.1	$ (59.7)	$ 118.7	$ 58.9	$ (59.7)	$ (0.0)
Georgia	$ 35.5	$ 54.6	$ 19.2	$ 60.2	$ 79.7	$ 19.5	$ 0.4
Hawaii	$ 5.0	$ 0.6	$ (4.3)	$ 7.6	$ 3.2	$ (4.3)	$ (0.0)
Idaho	$ 5.3	$ 26.4	$ 21.1	$ 9.3	$ 27.3	$ 18.0	$ (3.1)
Illinois	$ 57.5	$ 16.3	$ (41.2)	$ 77.2	$ 16.3	$ (60.9)	$ (19.7)
Indiana	$ 24.3	$ 11.5	$ (12.8)	$ 33.4	$ 11.5	$ (21.9)	$ (9.1)
Iowa	$ 12.0	$ 20.1	$ 8.0	$ 17.8	$ 20.1	$ 2.2	$ (5.8)
Kansas	$ 11.8	$ 48.5	$ 36.7	$ 17.7	$ 60.4	$ 42.7	$ 6.0
Kentucky	$ 14.9	$ 20.3	$ 5.5	$ 25.2	$ 72.5	$ 47.2	$ 41.8
Louisiana	$ 17.4	$ 50.2	$ 32.7	$ 24.7	$ 50.2	$ 25.5	$ (7.3)
Maine	$ 5.9	$ 11.0	$ 5.1	$ 8.9	$ 50.5	$ 41.6	$ 36.5
Maryland	$ 25.7	$ 0.5	$ (25.2)	$ 40.8	$ 0.5	$ (40.3)	$ (15.1)
Massachusetts	$ 33.8	$ 0.3	$ (33.4)	$ 48.4	$ 0.3	$ (48.0)	$ (14.6)
Michigan	$ 41.3	$ 25.2	$ (16.2)	$ 50.2	$ 25.2	$ (25.1)	$ (8.9)
Minnesota	$ 20.9	$ 26.1	$ 5.2	$ 30.5	$ 26.1	$ (4.4)	$ (9.6)
Mississippi	$ 10.0	$ 23.3	$ 13.3	$ 15.1	$ 106.7	$ 91.6	$ 78.4
Missouri	$ 24.0	$ 39.6	$ 15.7	$ 34.2	$ 39.6	$ 5.4	$ (10.2)
Montana	$ 4.1	$ 34.0	$ 29.9	$ 6.8	$ 46.2	$ 39.5	$ 9.5
Nebraska	$ 7.5	$ 16.0	$ 8.5	$ 11.5	$ 34.9	$ 23.4	$ 14.9
Nevada	$ 9.3	$ 7.9	$ (1.3)	$ 17.3	$ 7.9	$ (9.4)	$ (8.0)
New Hampshire	$ 6.8	$ 7.4	$ 0.6	$ 12.3	$ 16.1	$ 3.8	$ 3.2
New Jersey	$ 49.7	$ 3.3	$ (46.5)	$ 81.1	$ 3.3	$ (77.8)	$ (31.4)
New Mexico	$ 7.1	$ 29.6	$ 22.4	$ 12.9	$ 53.0	$ 40.1	$ 17.7
New York	$ 93.7	$ 30.8	$ (62.9)	$ 138.8	$ 75.9	$ (62.9)	$ 0.0
North Carolina	$ 32.9	$ 28.2	$ (4.7)	$ 50.9	$ 74.1	$ 23.2	$ 27.8
North Dakota	$ 2.9	$ 16.0	$ 13.0	$ 5.7	$ 16.0	$ 10.3	$ (2.8)
Ohio	$ 46.7	$ 9.6	$ (37.0)	$ 68.0	$ 9.6	$ (58.3)	$ (21.3)
Oklahoma	$ 14.3	$ 44.3	$ 30.0	$ 20.2	$ 44.3	$ 24.2	$ (5.9)
Oregon	$ 15.7	$ 26.6	$ 10.9	$ 23.5	$ 35.3	$ 11.9	$ 1.0
Pennsylvania	$ 55.6	$ 11.4	$ (44.1)	$ 81.1	$ 11.4	$ (69.7)	$ (25.5)
Rhode Island	$ 5.1	$ -	$ (5.1)	$ 8.1	$ -	$ (8.1)	$ (3.0)
South Carolina	$ 16.1	$ 36.0	$ 19.9	$ 25.4	$ 72.0	$ 46.7	$ 26.7
South Dakota	$ 3.3	$ 12.5	$ 9.3	$ 5.7	$ 13.9	$ 8.2	$ (1.1)
Tennessee	$ 24.5	$ 19.5	$ (5.0)	$ 36.2	$ 31.2	$ (5.0)	$ (0.0)
Texas	$ 79.7	$ 96.3	$ 16.6	$ 108.4	$ 125.0	$ 16.6	$ 0.0
Utah	$ 8.3	$ 7.5	$ (0.8)	$ 13.4	$ 12.7	$ (0.8)	$ 0.0
Vermont	$ 3.3	$ 8.6	$ 5.4	$ 5.8	$ 29.0	$ 23.2	$ 17.9
Virginia	$ 32.7	$ 10.2	$ (22.4)	$ 53.4	$ 10.2	$ (43.1)	$ (20.7)
Washington	$ 26.4	$ 30.6	$ 4.2	$ 40.2	$ 44.4	$ 4.2	$ (0.0)
West Virginia	$ 7.0	$ 20.2	$ 13.2	$ 11.0	$ 56.9	$ 45.9	$ 32.7
Wisconsin	$ 22.7	$ 37.8	$ 15.1	$ 29.4	$ 37.8	$ 8.4	$ (6.7)
Wyoming	$ 2.5	$ 16.9	$ 14.3	$ 4.4	$ 33.5	$ 29.1	$ 14.7
Total	$ 1,243	$ 1,141	$ (101)	$ 1,826	$ 1,826	$ (0)	$ 101

	USF Loops	Federal Support to Intrastate Jurisdiction				Fed'l Sup't to Interstate	Federal Support to All Jurisdictions	
		High Cost Loop Support Annual $	Local Switch Support Annual $	Total Annual $	/ line/ mo	Long Term Support Annual $	Annual $	/ line/ mo
Alaska	377,416	$ 28,649,160	$ 12,519,636	$ 41,168,796	$ 9.09	13,728,840	54,897,636	$ 12.12
Alabama	2,312,101	21,771,576	11,044,296	32,815,872	$ 1.18	6,458,988	39,274,860	$ 1.42
Arizona	2,541,549	19,284,312	6,478,344	25,762,656	$ 0.84	2,960,952	28,723,608	$ 0.94
Arkansas	1,318,280	46,203,000	9,542,328	55,745,328	$ 3.52	14,955,864	70,701,192	$ 4.47
California	20,809,546	28,821,888	9,195,456	38,017,344	$ 0.15	17,267,964	55,285,308	$ 0.22
Colorado	2,452,764	29,211,336	4,301,328	33,512,664	$ 1.14	12,380,772	45,893,436	$ 1.56
Connecticut	2,010,578	0	1,229,388	1,229,388	$ 0.05	170,292	1,399,680	$ 0.06
Delaware	507,860	0	0	0	$ -	0	0	$ -
District of Columbia	901,311	0	0	0	$ -	0	0	$ -
Florida	9,897,855	12,262,572	5,853,180	18,115,752	$ 0.15	6,119,388	24,235,140	$ 0.20
Georgia	4,513,317	41,813,688	12,822,480	54,636,168	$ 1.01	17,643,720	72,279,888	$ 1.33
Hawaii	693,630	0	645,216	645,216	$ 0.08	252,300	897,516	$ 0.11
Idaho	642,252	19,501,968	6,904,332	26,406,300	$ 3.43	2,530,332	28,936,632	$ 3.75
Illinois	7,714,111	5,512,644	10,805,844	16,318,488	$ 0.18	5,266,440	21,584,928	$ 0.23
Indiana	3,342,142	2,916,672	8,549,892	11,466,564	$ 0.29	5,034,420	16,500,984	$ 0.41
Iowa	1,539,592	4,404,072	15,650,028	20,054,100	$ 1.09	7,446,036	27,500,136	$ 1.49
Kansas	1,523,369	36,274,368	12,186,336	48,460,704	$ 2.65	9,260,952	57,721,656	$ 3.16
Kentucky	1,986,504	14,274,324	6,070,272	20,344,596	$ 0.85	5,267,208	25,611,804	$ 1.07
Louisiana	2,340,006	41,966,268	8,228,016	50,194,284	$ 1.79	17,420,556	67,614,840	$ 2.41
Maine	775,211	4,764,576	6,276,108	11,040,684	$ 1.19	5,511,048	16,551,732	$ 1.78
Maryland	3,344,003	0	497,916	497,916	$ 0.01	90,720	588,636	$ 0.01
Massachusetts	4,273,186	7,344	331,536	338,880	$ 0.01	78,720	417,600	$ 0.01
Michigan	6,028,449	13,923,684	11,258,796	25,182,480	$ 0.35	8,487,720	33,670,200	$ 0.47
Minnesota	2,773,994	8,131,428	17,992,164	26,123,592	$ 0.78	11,291,064	37,414,656	$ 1.12
Mississippi	1,270,809	18,404,028	4,912,716	23,316,744	$ 1.53	4,848,744	28,165,488	$ 1.85
Missouri	3,192,721	29,680,932	9,966,600	39,647,532	$ 1.03	10,793,028	50,440,560	$ 1.32
Montana	488,467	23,760,348	10,287,348	34,047,696	$ 5.81	10,107,372	44,155,068	$ 7.53
Nebraska	958,710	6,123,540	9,881,820	16,005,360	$ 1.39	3,701,304	19,706,664	$ 1.71
Nevada	1,122,489	3,290,520	4,625,352	7,915,872	$ 0.59	943,860	8,859,732	$ 0.66
New Hampshire	770,057	2,570,592	4,838,664	7,409,256	$ 0.80	1,637,460	9,046,716	$ 0.98
New Jersey	5,894,627	2,128,980	1,153,296	3,282,276	$ 0.05	0	3,282,276	$ 0.05
New Mexico	862,940	19,438,008	10,118,832	29,556,840	$ 2.85	5,686,404	35,243,244	$ 3.40
New York	12,308,488	9,912,588	20,896,680	30,809,268	$ 0.21	7,122,504	37,931,772	$ 0.26
North Carolina	4,453,425	21,924,948	6,308,220	28,233,168	$ 0.53	12,344,328	40,577,496	$ 0.76
North Dakota	393,678	4,651,596	11,317,032	15,968,628	$ 3.38	5,228,388	21,197,016	$ 4.49
Ohio	6,488,115	4,505,976	5,138,064	9,644,040	$ 0.12	5,122,572	14,766,612	$ 0.19
Oklahoma	1,869,687	27,165,468	17,181,516	44,346,984	$ 1.98	15,552,768	59,899,752	$ 2.67
Oregon	1,909,459	18,454,164	8,152,008	26,606,172	$ 1.16	10,485,576	37,091,748	$ 1.62
Pennsylvania	7,669,723	1,416,984	10,011,852	11,428,836	$ 0.12	14,123,820	25,552,656	$ 0.28
Rhode Island	625,327	0	0	0	$ -	0	0	$ -
South Carolina	2,042,697	23,333,424	12,654,324	35,987,748	$ 1.47	9,221,580	45,209,328	$ 1.84
South Dakota	395,137	2,809,320	9,723,336	12,532,656	$ 2.64	4,274,136	16,806,792	$ 3.54
Tennessee	3,161,392	8,093,340	11,380,200	19,473,540	$ 0.51	8,293,092	27,766,632	$ 0.73
Texas	11,286,718	76,977,396	19,306,668	96,284,064	$ 0.71	27,931,236	124,215,300	$ 0.92
Utah	1,022,290	2,905,944	4,546,800	7,452,744	$ 0.61	950,268	8,403,012	$ 0.68
Vermont	380,284	3,738,648	4,879,584	8,618,232	$ 1.89	3,225,240	11,843,472	$ 2.60
Virginia	4,166,624	4,822,740	5,419,236	10,241,976	$ 0.20	3,429,576	13,671,552	$ 0.27
Washington	3,333,124	23,076,024	7,569,744	30,645,768	$ 0.77	12,848,604	43,494,372	$ 1.09
West Virginia	930,411	16,966,704	3,245,292	20,211,996	$ 1.81	972,264	21,184,260	$ 1.90
Wisconsin	3,172,890	12,957,672	24,841,200	37,798,872	$ 0.99	13,646,280	51,445,152	$ 1.35
Wyoming	272,633	12,721,368	4,134,000	16,855,368	$ 5.15	4,503,156	21,358,524	$ 6.53
Total	165,061,948	761,526,132	420,873,276	1,182,399,408	$ 0.60	366,617,856	1,549,017,264	$ 0.78
Guam	0	0	0	0	$ -	1,065,924	1,065,924	$ -
Micronesia	18,837	3,615,564	1,295,232	4,910,796	$ 21.72	0	4,910,796	$ 21.72
Puerto Rico	1,188,082	49,272,528	0	49,272,528	$ 3.46	96,579,792	145,852,320	$ 10.23
Virgin Islands	58,315	11,359,152	0	11,359,152	$ 16.23	4,886,532	16,245,684	$ 23.22
Grand Total	166,327,182	825,773,376	422,168,508	1,247,941,884	$ 0.63	469,150,104	1,717,091,988	$ 0.86

Source of Data: - Bell Atlantic file provided 3/98, based upon
USAC Figures from spreadsheet "HICO2Q98.XLS" dated Jan 28 1998.

(Annual amounts are our calculation Monthly x 12 months)

	Forward-Looking Costs -				Embedded Costs			
	Mixture of F/L Cost Models:		HAI =	100%				
			BCPM =	0%				
			Average Cost				Average Cost	
	100% Support Needed	**Access Lines**	**Annual Cost (millions)**	**per line per month ($ / l / mo)**	**Access Lines**	**Annual Cost (millions)**	**per line per month ($ / l / mo)**	
Alaska	$ 783,652	157,299	$ 32	$ 16.82	407,089	$ 249	$ 51.05	
Alabama	$ 144,178,454	2,256,437	$ 750	$ 27.69	2,371,617	$ 1,031	$ 36.23	
Arizona	$ 87,961,018	2,566,479	$ 601	$ 19.52	2,620,101	$ 1,152	$ 36.63	
Arkansas	$ 121,397,757	1,264,451	$ 465	$ 30.66	1,357,264	$ 716	$ 43.96	
California	$ 100,464,892	20,747,071	$ 3,396	$ 13.64	21,707,375	$ 7,528	$ 28.90	
Colorado	$ 123,744,802	2,507,661	$ 672	$ 22.32	2,548,940	$ 1,223	$ 39.97	
Connecticut	$ 10,376,428	2,143,103	$ 472	$ 18.35	2,107,345	$ 921	$ 36.42	
Delaware	$ 2,029,208	505,643	$ 102	$ 16.75	542,120	$ 171	$ 26.30	
District of Columbia	$ -	933,753	$ 125	$ 11.13	972,665	$ 229	$ 19.66	
Florida	$ 68,425,711	9,869,508	$ 1,933	$ 16.32	10,304,031	$ 4,329	$ 35.01	
Georgia	$ 131,739,836	4,419,157	$ 1,147	$ 21.63	4,691,137	$ 2,211	$ 39.28	
Hawaii	$ 6,340,059	691,429	$ 143	$ 17.23	776,571	$ 382	$ 40.95	
Idaho	$ 74,910,148	687,673	$ 249	$ 30.18	668,899	$ 324	$ 40.31	
Illinois	$ 130,107,119	7,558,064	$ 1,553	$ 17.13	8,053,516	$ 2,730	$ 28.25	
Indiana	$ 86,664,369	3,280,223	$ 816	$ 20.74	3,457,575	$ 1,324	$ 31.91	
Iowa	$ 137,314,042	1,541,631	$ 537	$ 29.02	1,605,947	$ 662	$ 34.38	
Kansas	$ 154,894,686	1,500,775	$ 526	$ 29.23	1,573,136	$ 755	$ 39.99	
Kentucky	$ 94,194,815	1,965,124	$ 606	$ 25.68	2,049,601	$ 975	$ 39.63	
Louisiana	$ 84,539,553	2,282,732	$ 602	$ 21.97	2,407,909	$ 1,148	$ 39.75	
Maine	$ 53,523,742	761,227	$ 268	$ 29.36	806,442	$ 414	$ 42.81	
Maryland	$ 21,173,766	3,369,301	$ 668	$ 16.52	3,528,611	$ 1,252	$ 29.57	
Massachusetts	$ 9,122,056	4,161,313	$ 767	$ 15.36	4,528,072	$ 1,780	$ 32.76	
Michigan	$ 106,076,240	5,894,035	$ 1,322	$ 18.69	6,260,158	$ 2,263	$ 30.12	
Minnesota	$ 191,928,397	2,797,911	$ 836	$ 24.90	2,889,066	$ 1,134	$ 32.71	
Mississippi	$ 141,425,429	1,249,305	$ 487	$ 32.48	1,307,345	$ 705	$ 44.92	
Missouri	$ 220,502,716	3,142,325	$ 939	$ 24.89	3,316,033	$ 1,450	$ 36.44	
Montana	$ 157,603,840	487,649	$ 311	$ 53.12	507,239	$ 281	$ 46.10	
Nebraska	$ 153,998,898	957,354	$ 414	$ 36.01	1,008,883	$ 480	$ 39.63	
Nevada	$ 42,341,750	1,121,411	$ 257	$ 19.07	1,172,275	$ 389	$ 27.68	
New Hampshire	$ 20,358,601	762,149	$ 201	$ 21.99	802,056	$ 384	$ 39.91	
New Jersey	$ 4,352,354	5,885,396	$ 985	$ 13.94	6,269,389	$ 2,075	$ 27.58	
New Mexico	$ 107,024,314	867,334	$ 325	$ 31.20	889,682	$ 453	$ 42.40	
New York	$ 138,582,805	12,200,932	$ 2,331	$ 15.92	12,597,063	$ 5,679	$ 37.57	
North Carolina	$ 163,100,669	4,354,284	$ 1,274	$ 24.37	4,619,559	$ 2,075	$ 37.43	
North Dakota	$ 131,199,443	393,893	$ 252	$ 53.34	411,774	$ 192	$ 38.81	
Ohio	$ 93,175,989	6,385,684	$ 1,456	$ 19.00	6,767,520	$ 2,606	$ 32.09	
Oklahoma	$ 169,020,818	1,834,270	$ 626	$ 28.43	1,929,137	$ 885	$ 38.22	
Oregon	$ 99,996,968	1,937,316	$ 530	$ 22.81	1,990,447	$ 899	$ 37.64	
Pennsylvania	$ 115,487,242	7,604,592	$ 1,685	$ 18.46	8,069,739	$ 2,759	$ 28.50	
Rhode Island	$ 751,064	631,162	$ 116	$ 15.37	660,255	$ 261	$ 32.95	
South Carolina	$ 71,727,240	2,015,967	$ 571	$ 23.59	2,108,568	$ 1,046	$ 41.35	
South Dakota	$ 126,393,810	396,893	$ 248	$ 52.02	411,249	$ 195	$ 39.50	
Tennessee	$ 117,706,135	3,115,318	$ 874	$ 23.39	3,266,094	$ 1,388	$ 35.42	
Texas	$ 400,765,702	11,110,516	$ 2,677	$ 20.08	11,646,036	$ 5,171	$ 37.00	
Utah	$ 49,153,825	1,034,287	$ 264	$ 21.31	1,063,247	$ 437	$ 34.24	
Vermont	$ 24,159,017	376,543	$ 127	$ 28.14	396,427	$ 230	$ 48.29	
Virginia	$ 120,562,775	4,182,405	$ 1,011	$ 20.14	4,456,171	$ 1,690	$ 31.61	
Washington	$ 80,996,683	3,330,539	$ 759	$ 19.00	3,479,286	$ 1,523	$ 36.47	
West Virginia	$ 88,490,200	834,670	$ 331	$ 33.03	973,414	$ 495	$ 42.37	
Wisconsin	$ 127,617,750	3,106,464	$ 820	$ 21.99	3,281,583	$ 1,178	$ 29.92	
Wyoming	$ 51,798,379	256,984	$ 123	$ 39.74	284,920	$ 168	$ 49.23	
Total	4,959,401,516	163,280,343	$ 38,547		171,513,489	$ 69,746		
Maximum Value				$ 53.34			$ 49.23	
Minimum Value				$ 11.13			$ 19.66	
National Average				**$ 19.67**			**$ 33.89**	

Rate to Fund 25% of support from Interstate Rev. =   1.50%

High Cost Modeling Project
Data Sheet - Hatfield Data - Version 5.0a \1
4/22/98 11:31

	Average Monthly Cost	Total Switched Lines		Annual Support (@ $31 and $51)	Network Annual Cost	Percent of Total Cost Covered		Primary Residential Lines	Single Business Lines
Alaska	$ 16.82	157,299	$	783,652	$ 31,750,731	2%		84,080	4,647
Alabama	$ 27.69	2,256,437	$	144,178,454	$ 749,767,611	19%		1,558,096	57,275
Arizona	$ 19.52	2,566,479	$	87,961,018	$ 601,091,107	15%		1,721,198	40,923
Arkansas	$ 30.66	1,264,451	$	121,397,757	$ 465,197,452	26%		862,339	34,154
California	$ 13.64	20,747,071	$	100,464,892	$ 3,395,619,704	3%		11,121,387	654,899
Colorado	$ 22.32	2,507,661	$	123,744,802	$ 671,697,937	18%		1,595,288	56,341
Connecticut	$ 18.35	2,143,103	$	10,376,428	$ 471,823,567	2%		1,295,557	40,255
Delaware	$ 16.75	505,643	$	2,029,208	$ 101,611,000	2%		294,900	13,554
District of Columbia	$ 11.13	933,753	$	-	$ 124,747,703	0%		270,280	5,854
Florida	$ 16.32	9,869,508	$	68,425,711	$ 1,933,402,779	4%		6,463,740	260,722
Georgia	$ 21.63	4,419,157	$	131,739,836	$ 1,147,215,291	11%		2,703,666	103,143
Hawaii	$ 17.23	691,429	$	6,340,059	$ 142,941,141	4%		423,965	20,368
Idaho	$ 30.18	687,673	$	74,910,148	$ 249,025,164	30%		468,362	20,594
Illinois	$ 17.13	7,558,064	$	130,107,119	$ 1,553,381,514	8%		4,297,671	302,730
Indiana	$ 20.74	3,280,223	$	86,664,369	$ 816,284,653	11%		2,039,264	82,927
Iowa	$ 29.02	1,541,631	$	137,314,042	$ 536,905,514	26%		1,038,819	33,269
Kansas	$ 29.23	1,500,775	$	154,894,686	$ 526,486,634	29%		967,859	37,191
Kentucky	$ 25.68	1,965,124	$	94,194,815	$ 605,578,708	16%		1,356,419	54,836
Louisiana	$ 21.97	2,282,732	$	84,539,553	$ 601,793,109	14%		1,523,192	54,309
Maine	$ 29.36	761,227	$	53,523,742	$ 268,175,123	20%		524,397	31,199
Maryland	$ 16.52	3,369,301	$	21,173,766	$ 667,973,050	3%		1,931,304	63,255
Massachusetts	$ 15.36	4,161,313	$	9,122,056	$ 767,010,437	1%		2,423,790	207,073
Michigan	$ 18.69	5,894,035	$	106,076,240	$ 1,321,598,140	8%		3,647,227	239,770
Minnesota	$ 24.90	2,797,911	$	191,928,397	$ 836,133,123	23%		1,806,050	47,596
Mississippi	$ 32.48	1,249,305	$	141,425,429	$ 486,876,673	29%		891,378	44,877
Missouri	$ 24.89	3,142,325	$	220,502,716	$ 938,624,015	23%		2,195,722	74,564
Montana	$ 53.12	487,649	$	157,603,840	$ 310,830,284	51%		335,376	14,374
Nebraska	$ 36.01	957,354	$	153,998,898	$ 413,732,737	37%		634,243	19,480
Nevada	$ 19.07	1,121,411	$	42,341,750	$ 256,651,812	16%		674,950	23,559
New Hampshire	$ 21.99	762,149	$	20,358,601	$ 201,110,355	10%		498,559	41,371
New Jersey	$ 13.94	5,885,396	$	4,352,354	$ 984,601,642	0%		3,152,816	122,643
New Mexico	$ 31.20	867,334	$	107,024,314	$ 324,717,444	33%		572,958	20,033
New York	$ 15.92	12,200,932	$	138,582,805	$ 2,331,120,631	6%		7,249,905	320,042
North Carolina	$ 24.37	4,354,284	$	163,100,669	$ 1,273,590,041	13%		2,882,184	164,845
North Dakota	$ 53.34	393,893	$	131,199,443	$ 252,126,159	52%		261,122	15,544
Ohio	$ 19.00	6,385,684	$	93,175,989	$ 1,455,638,035	6%		4,144,374	233,213
Oklahoma	$ 28.43	1,834,270	$	169,020,818	$ 625,700,837	27%		1,244,165	50,594
Oregon	$ 22.81	1,937,316	$	99,996,968	$ 530,283,344	19%		1,268,779	48,436
Pennsylvania	$ 18.46	7,604,592	$	115,487,242	$ 1,685,012,971	7%		4,855,176	205,643
Rhode Island	$ 15.37	631,162	$	751,064	$ 116,447,303	1%		399,612	46,609
South Carolina	$ 23.59	2,015,967	$	71,727,240	$ 570,674,479	13%		1,390,643	55,146
South Dakota	$ 52.02	396,893	$	126,393,810	$ 247,762,622	51%		262,558	11,062
Tennessee	$ 23.39	3,115,318	$	117,706,135	$ 874,454,347	13%		2,128,777	77,247
Texas	$ 20.08	11,110,516	$	400,765,702	$ 2,676,840,949	15%		6,688,557	232,688
Utah	$ 21.31	1,034,287	$	49,153,825	$ 264,491,186	19%		686,245	20,770
Vermont	$ 28.14	376,543	$	24,159,017	$ 127,169,907	19%		242,686	22,185
Virginia	$ 20.14	4,182,405	$	120,562,775	$ 1,010,793,213	12%		2,494,470	85,317
Washington	$ 19.00	3,330,539	$	80,996,683	$ 759,282,782	11%		2,230,350	78,361
West Virginia	$ 33.03	834,670	$	88,490,200	$ 330,820,835	27%		593,461	22,037
Wisconsin	$ 21.99	3,106,464	$	127,617,750	$ 819,735,970	16%		2,058,758	78,947
Wyoming	$ 39.74	256,984	$	51,798,379	$ 122,547,809	42%		166,581	8,532
US Average	$ 19.67					13%			
Calculated Total		163,437,642	$	4,960,185,169	$ 38,578,849,576				
Maximum Value						52%			
Minimum Value						0%			

\1 Source: Data file provided by Bell Atlantic 3/11/98 -- HAI calculations were based on density zone averaging

	Average Loops	Average Cost per Loop \1				
		Loop Cost	Central Office Cost	Trunking Cost	Total Cost	Total Cost
		(annual)	(annual)	(annual)	(annual)	(monthly)
Alaska	407,089	$ 382.76	$ 183.54	$ 46.35	$ 612.65	$ 51.05
Alabama	2,371,617	$ 272.59	$ 132.65	$ 29.55	$ 434.79	$ 36.23
Arizona	2,620,101	$ 308.94	$ 111.73	$ 18.93	$ 439.60	$ 36.63
Arkansas	1,357,264	$ 369.26	$ 119.60	$ 38.71	$ 527.57	$ 43.96
California	21,707,375	$ 190.65	$ 108.04	$ 48.10	$ 346.79	$ 28.90
Colorado	2,548,940	$ 316.90	$ 129.44	$ 33.27	$ 479.61	$ 39.97
Connecticut	2,107,345	$ 227.49	$ 155.27	$ 54.29	$ 437.05	$ 36.42
Delaware	542,120	$ 205.62	$ 80.83	$ 29.10	$ 315.55	$ 26.30
District of Columbia	972,665	$ 65.68	$ 143.11	$ 27.08	$ 235.88	$ 19.66
Florida	10,304,031	$ 286.87	$ 110.92	$ 22.32	$ 420.10	$ 35.01
Georgia	4,691,137	$ 319.96	$ 118.71	$ 32.64	$ 471.31	$ 39.28
Hawaii	776,571	$ 255.89	$ 173.83	$ 61.72	$ 491.44	$ 40.95
Idaho	668,899	$ 338.19	$ 114.50	$ 31.00	$ 483.70	$ 40.31
Illinois	8,053,516	$ 188.46	$ 111.89	$ 38.62	$ 338.97	$ 28.25
Indiana	3,457,575	$ 227.46	$ 122.48	$ 32.96	$ 382.90	$ 31.91
Iowa	1,605,947	$ 238.49	$ 135.75	$ 38.28	$ 412.52	$ 34.38
Kansas	1,573,136	$ 305.80	$ 125.86	$ 48.22	$ 479.88	$ 39.99
Kentucky	2,049,601	$ 310.10	$ 127.79	$ 37.73	$ 475.62	$ 39.63
Louisiana	2,407,909	$ 319.30	$ 121.13	$ 36.53	$ 476.96	$ 39.75
Maine	806,442	$ 299.41	$ 142.46	$ 71.89	$ 513.76	$ 42.81
Maryland	3,528,611	$ 213.87	$ 111.82	$ 29.16	$ 354.85	$ 29.57
Massachusetts	4,528,072	$ 188.13	$ 126.78	$ 78.19	$ 393.11	$ 32.76
Michigan	6,260,158	$ 213.15	$ 97.58	$ 50.75	$ 361.47	$ 30.12
Minnesota	2,889,066	$ 241.63	$ 127.02	$ 23.91	$ 392.56	$ 32.71
Mississippi	1,307,345	$ 366.53	$ 131.18	$ 41.28	$ 538.98	$ 44.92
Missouri	3,316,033	$ 279.08	$ 124.84	$ 33.40	$ 437.32	$ 36.44
Montana	507,239	$ 376.18	$ 127.09	$ 49.99	$ 553.25	$ 46.10
Nebraska	1,008,883	$ 263.56	$ 170.85	$ 41.11	$ 475.52	$ 39.63
Nevada	1,172,275	$ 185.11	$ 115.93	$ 31.07	$ 332.11	$ 27.68
New Hampshire	802,056	$ 300.01	$ 123.84	$ 55.08	$ 478.92	$ 39.91
New Jersey	6,269,389	$ 189.48	$ 100.91	$ 40.52	$ 330.91	$ 27.58
New Mexico	889,682	$ 348.19	$ 130.89	$ 29.76	$ 508.84	$ 42.40
New York	12,597,063	$ 225.90	$ 145.58	$ 79.33	$ 450.80	$ 37.57
North Carolina	4,619,559	$ 296.55	$ 123.12	$ 29.49	$ 449.16	$ 37.43
North Dakota	411,774	$ 289.59	$ 139.99	$ 36.18	$ 465.76	$ 38.81
Ohio	6,767,520	$ 216.70	$ 121.23	$ 47.12	$ 385.05	$ 32.09
Oklahoma	1,929,137	$ 294.17	$ 123.23	$ 41.20	$ 458.61	$ 38.22
Oregon	1,990,447	$ 295.32	$ 122.06	$ 34.29	$ 451.67	$ 37.64
Pennsylvania	8,069,739	$ 214.94	$ 96.42	$ 30.59	$ 341.96	$ 28.50
Rhode Island	660,255	$ 220.05	$ 120.80	$ 54.54	$ 395.39	$ 32.95
South Carolina	2,108,568	$ 337.79	$ 129.56	$ 28.91	$ 496.25	$ 41.35
South Dakota	411,249	$ 283.56	$ 152.50	$ 37.98	$ 474.04	$ 39.50
Tennessee	3,266,094	$ 279.18	$ 115.32	$ 30.50	$ 425.00	$ 35.42
Texas	11,646,036	$ 278.34	$ 129.11	$ 36.57	$ 444.02	$ 37.00
Utah	1,063,247	$ 259.74	$ 123.27	$ 27.92	$ 410.93	$ 34.24
Vermont	396,427	$ 352.37	$ 155.78	$ 71.28	$ 579.43	$ 48.29
Virginia	4,456,171	$ 240.93	$ 106.38	$ 31.95	$ 379.26	$ 31.61
Washington	3,479,286	$ 272.46	$ 132.00	$ 33.13	$ 437.59	$ 36.47
West Virginia	973,414	$ 334.81	$ 129.86	$ 43.82	$ 508.49	$ 42.37
Wisconsin	3,281,583	$ 217.59	$ 108.40	$ 33.04	$ 359.03	$ 29.92
Wyoming	284,920	$ 436.01	$ 94.55	$ 60.17	$ 590.74	$ 49.23
Total or Weighted Avera	171,513,489	$ 245.64	$ 119.52	$ 41.50	$ 406.65	$ 33.89
Micronesia	19,188	$ 558.97	$ 279.40	$ 139.74	$ 978.10	$ 81.51
Puerto Rico	1,227,092	$ 441.18	$ 129.15	$ 50.82	$ 621.15	$ 51.76
Virgin Islands	60,086	$ 591.92	$ 143.03	$ 42.52	$ 777.47	$ 64.79
Total or Weighted Avera	172,819,855	$ 247.18	$ 119.61	$ 41.57	$ 408.37	$ 34.03

\1 Source: Bell Atlantic, January, 1998

High Cost Modeling Project
Data Sheet - Loops and Revenues
4/22/98 11:31

	Loops (USF - 1996)	Industry Revenues 1996 \1				Industry Revenues 1999 Assumed Growth Factor = 15%			
		Interstate Revenue (millions)	Intrastate Revenue (millions)	Total Revenue (millions)	Percent Interstate Revenue	Interstate Revenue (millions)	Intrastate Revenue (millions)	Total Revenue (millions)	Percent Interstate Revenue
Alaska	377,416	$192	$265	$ 458	42%	$221	$305	$ 526	42%
Alabama	2,311,751	978	1,694	2,672	37%	1,125	1,949	3,073	37%
Arizona	2,541,477	1,403	1,454	2,857	49%	1,613	1,673	3,286	49%
Arkansas	1,318,328	589	921	1,510	39%	678	1,059	1,737	39%
California	20,809,543	6,946	15,562	22,508	31%	7,988	17,897	25,885	31%
Colorado	2,452,924	1,386	1,716	3,101	45%	1,594	1,973	3,567	45%
Connecticut	2,010,578	1,145	1,542	2,687	43%	1,317	1,773	3,090	43%
Delaware	507,860	280	234	513	54%	322	269	590	54%
District of Columbia	901,311	410	447	857	48%	472	514	985	48%
Florida	9,897,855	4,657	6,727	11,384	41%	5,356	7,736	13,092	41%
Georgia	4,512,195	2,361	3,417	5,778	41%	2,716	3,930	6,645	41%
Hawaii	693,630	297	459	757	39%	342	528	870	39%
Idaho	642,225	365	390	755	48%	420	448	868	48%
Illinois	7,714,127	3,029	5,158	8,188	37%	3,484	5,932	9,416	37%
Indiana	3,342,186	1,310	2,335	3,646	36%	1,507	2,686	4,193	36%
Iowa	1,539,779	699	1,009	1,709	41%	804	1,161	1,965	41%
Kansas	1,522,857	697	1,027	1,723	40%	801	1,181	1,982	40%
Kentucky	1,986,437	989	1,547	2,536	39%	1,138	1,779	2,916	39%
Louisiana	2,340,211	971	1,745	2,715	36%	1,116	2,006	3,123	36%
Maine	775,596	349	481	830	42%	401	553	955	42%
Maryland	3,344,003	1,603	2,253	3,856	42%	1,844	2,591	4,435	42%
Massachusetts	4,273,186	1,898	3,003	4,901	39%	2,183	3,454	5,637	39%
Michigan	6,029,558	1,972	4,588	6,559	30%	2,268	5,276	7,543	30%
Minnesota	2,773,652	1,198	1,839	3,037	39%	1,378	2,115	3,492	39%
Mississippi	1,270,537	592	989	1,580	37%	680	1,137	1,817	37%
Missouri	3,194,602	1,342	2,126	3,468	39%	1,544	2,445	3,988	39%
Montana	488,298	265	340	605	44%	305	391	696	44%
Nebraska	958,664	450	766	1,216	37%	518	880	1,398	37%
Nevada	1,122,415	679	531	1,210	56%	781	611	1,392	56%
New Hampshire	770,057	483	491	975	50%	556	565	1,121	50%
New Jersey	5,894,627	3,184	3,854	7,038	45%	3,662	4,433	8,094	45%
New Mexico	862,904	505	597	1,101	46%	580	686	1,267	46%
New York	12,308,772	5,446	9,022	14,468	38%	6,263	10,375	16,638	38%
North Carolina	4,453,813	1,997	3,304	5,301	38%	2,297	3,799	6,096	38%
North Dakota	393,698	224	290	513	44%	257	333	590	44%
Ohio	6,488,674	2,668	5,327	7,996	33%	3,068	6,127	9,195	33%
Oklahoma	1,869,182	791	1,176	1,967	40%	910	1,352	2,262	40%
Oregon	1,909,457	921	1,212	2,133	43%	1,059	1,394	2,453	43%
Pennsylvania	7,669,653	3,183	4,796	7,979	40%	3,661	5,516	9,176	40%
Rhode Island	625,327	320	363	682	47%	367	417	785	47%
South Carolina	2,042,560	997	1,553	2,550	39%	1,146	1,786	2,932	39%
South Dakota	395,160	225	272	497	45%	258	313	572	45%
Tennessee	3,159,820	1,420	2,120	3,540	40%	1,633	2,438	4,071	40%
Texas	11,279,289	4,253	7,986	12,240	35%	4,891	9,184	14,075	35%
Utah	1,022,272	527	591	1,119	47%	607	680	1,287	47%
Vermont	380,341	227	253	479	47%	261	291	551	47%
Virginia	4,166,624	2,095	2,850	4,945	42%	2,410	3,277	5,687	42%
Washington	3,333,163	1,579	2,267	3,846	41%	1,816	2,607	4,423	41%
West Virginia	930,411	431	674	1,105	39%	496	775	1,271	39%
Wisconsin	3,173,686	1,154	2,132	3,286	35%	1,327	2,452	3,778	35%
Wyoming	272,634	174	176	350	50%	200	203	402	50%
US Average					38%				38%
Calculated Total	164,677,909	$ 71,666	$ 115,605	$ 187,272		$ 82,416	$ 132,946	$ 215,363	

\1 Source: FCC Publication, Universal Service Support and Telephone Revenue by State, January, 1998, Table 11.

	Embedded Average Cost	Existing Support Intrastate Jurisdiction
	/ line/ mo	/ line/ mo
Alaska	$ 51.05	$ 9.09
Alabama	$ 36.23	$ 1.18
Arizona	$ 36.63	$ 0.84
Arkansas	$ 43.96	$ 3.52
California	$ 28.90	$ 0.15
Colorado	$ 39.97	$ 1.14
Connecticut	$ 36.42	$ 0.05
Delaware	$ 26.30	$ -
District of Columbia	$ 19.66	$ -
Florida	$ 35.01	$ 0.15
Georgia	$ 39.28	$ 1.01
Hawaii	$ 40.95	$ 0.08
Idaho	$ 40.31	$ 3.43
Illinois	$ 28.25	$ 0.18
Indiana	$ 31.91	$ 0.29
Iowa	$ 34.38	$ 1.09
Kansas	$ 39.99	$ 2.65
Kentucky	$ 39.63	$ 0.85
Louisiana	$ 39.75	$ 1.79
Maine	$ 42.81	$ 1.19
Maryland	$ 29.57	$ 0.01
Massachusetts	$ 32.76	$ 0.01
Michigan	$ 30.12	$ 0.35
Minnesota	$ 32.71	$ 0.78
Mississippi	$ 44.92	$ 1.53
Missouri	$ 36.44	$ 1.03
Montana	$ 46.10	$ 5.81
Nebraska	$ 39.63	$ 1.39
Nevada	$ 27.68	$ 0.59
New Hampshire	$ 39.91	$ 0.80
New Jersey	$ 27.58	$ 0.05
New Mexico	$ 42.40	$ 2.85
New York	$ 37.57	$ 0.21
North Carolina	$ 37.43	$ 0.53
North Dakota	$ 38.81	$ 3.38
Ohio	$ 32.09	$ 0.12
Oklahoma	$ 38.22	$ 1.98
Oregon	$ 37.64	$ 1.16
Pennsylvania	$ 28.50	$ 0.12
Rhode Island	$ 32.95	$ -
South Carolina	$ 41.35	$ 1.47
South Dakota	$ 39.50	$ 2.64
Tennessee	$ 35.42	$ 0.51
Texas	$ 37.00	$ 0.71
Utah	$ 34.24	$ 0.61
Vermont	$ 48.29	$ 1.89
Virginia	$ 31.61	$ 0.20
Washington	$ 36.47	$ 0.77
West Virginia	$ 42.37	$ 1.81
Wisconsin	$ 29.92	$ 0.99
Wyoming	$ 49.23	$ 5.15
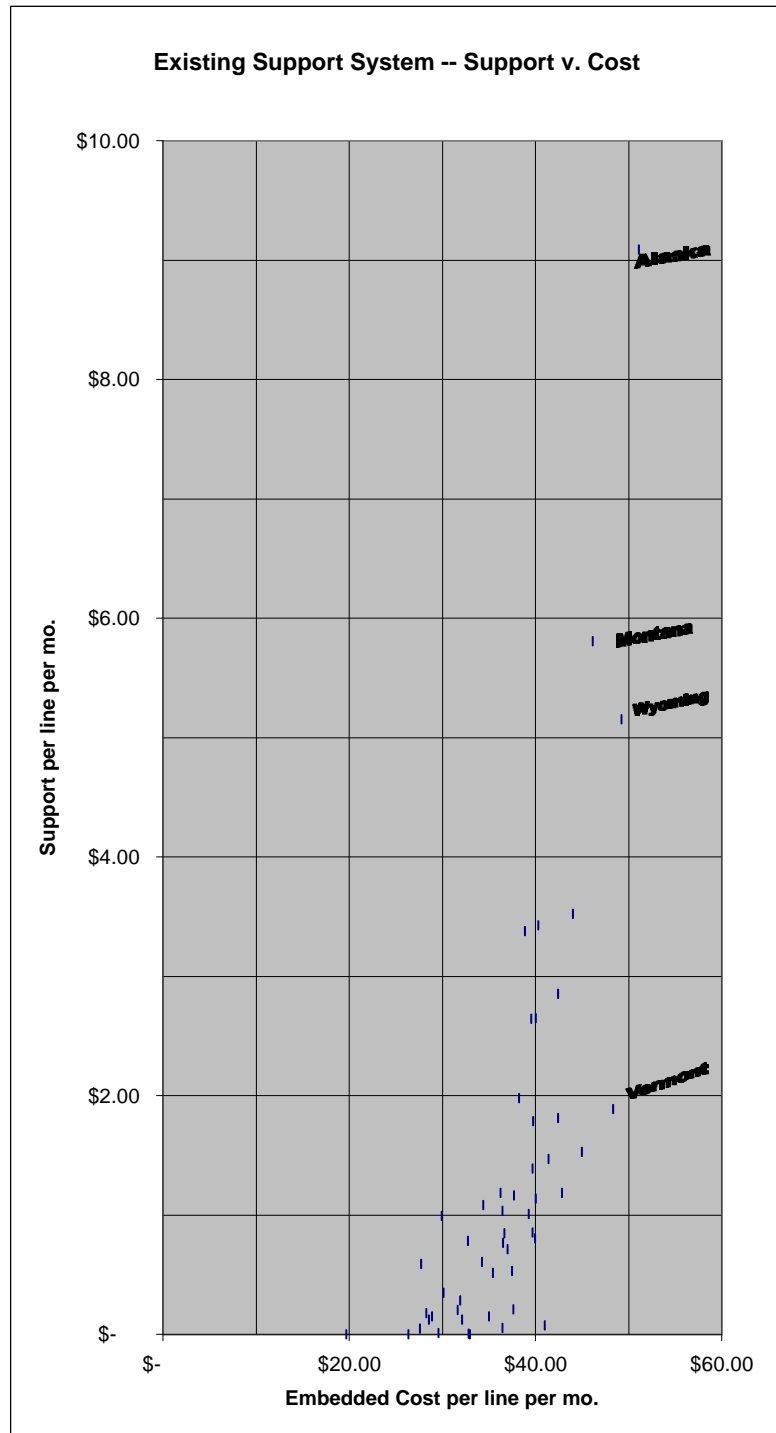
Existing Support System -- Support v. Cost

	Embedded Average Cost	Proposed Support Intrastate Jurisdiction
	/ line/ mo	/ line/ mo
Alaska	$ 51.05	$ 11.60
Alabama	$ 36.23	$ 1.18
Arizona	$ 36.63	$ 1.34
Arkansas	$ 43.96	$ 6.29
California	$ 28.90	$ 0.15
Colorado	$ 39.97	$ 1.99
Connecticut	$ 36.42	$ 0.52
Delaware	$ 26.30	$ -
District of Columbia	$ 19.66	$ -
Florida	$ 35.01	$ 0.50
Georgia	$ 39.28	$ 1.47
Hawaii	$ 40.95	$ 0.39
Idaho	$ 40.31	$ 3.54
Illinois	$ 28.25	$ 0.18
Indiana	$ 31.91	$ 0.29
Iowa	$ 34.38	$ 1.09
Kansas	$ 39.99	$ 3.31
Kentucky	$ 39.63	$ 3.04
Louisiana	$ 39.75	$ 1.79
Maine	$ 42.81	$ 5.42
Maryland	$ 29.57	$ 0.01
Massachusetts	$ 32.76	$ 0.01
Michigan	$ 30.12	$ 0.35
Minnesota	$ 32.71	$ 0.78
Mississippi	$ 44.92	$ 7.00
Missouri	$ 36.44	$ 1.03
Montana	$ 46.10	$ 7.89
Nebraska	$ 39.63	$ 3.03
Nevada	$ 27.68	$ 0.59
New Hampshire	$ 39.91	$ 1.74
New Jersey	$ 27.58	$ 0.05
New Mexico	$ 42.40	$ 5.12
New York	$ 37.57	$ 0.51
North Carolina	$ 37.43	$ 1.39
North Dakota	$ 38.81	$ 3.38
Ohio	$ 32.09	$ 0.12
Oklahoma	$ 38.22	$ 1.98
Oregon	$ 37.64	$ 1.54
Pennsylvania	$ 28.50	$ 0.12
Rhode Island	$ 32.95	$ -
South Carolina	$ 41.35	$ 2.94
South Dakota	$ 39.50	$ 2.94
Tennessee	$ 35.42	$ 0.82
Texas	$ 37.00	$ 0.92
Utah	$ 34.24	$ 1.03
Vermont	$ 48.29	$ 6.36
Virginia	$ 31.61	$ 0.20
Washington	$ 36.47	$ 1.11
West Virginia	$ 42.37	$ 5.09
Wisconsin	$ 29.92	$ 0.99
Wyoming	$ 49.23	$ 10.23

New Support System -- Support v. Cost

Support per line per mo.

Embedded Cost per line per mo.